

PROCEEDINGS

of the

American Society

of

Civil Engineers

VOL. L

DECEMBER, 1924

No. 10

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Detroit Meeting

The Fall Meeting of the Society held in Detroit, Mich., October 22-25, 1924, will be recorded as a most successful meeting, the total registration having been about 500. Preceding the formal opening of the meeting, a joint session of the Sanitary Engineering Division with the American Public Health Association was held on Wednesday, October 22.

The Fall Meeting was opened on Thursday, October 23, by Gardner S. Williams, President of the Detroit Section, who delivered an address of welcome to the visiting engineers, to which President Grunsky responded. Following a Business Meeting, President Grunsky introduced Francis C. Shenehon, M. Am. Soc. C. E., who presented his paper on "The St. Lawrence Deep Waterway to the Sea", illustrating his remarks with lantern slides.

Discussion on the subject was opened by H. de B. Parsons, M. Am. Soc. C. E., who was followed by Professor Herbert C. Sadler, F. P. Williams, M. Am. Soc. C. E., and the author.

At the afternoon session, discussion of the St. Lawrence Waterway was continued, the speakers being Messrs. Thomas H. Hogg, L. C. Sabin, D. W. McLachlan, Gardner S. Williams, G. B. Pillsbury, E. P. Goodrich, David B. Rushmore, R. R. Lyman, Maurice W. Williams, Frederick A. Mayhall, J. H. Hart, A. Lindblad, L. F. Harza, Walter M. Smith, and F. C. Shenehon. The attendance at each of the sessions was approximately 250.

The second day of the meeting, Friday, October 24, was devoted to the programs of the Technical Division. The Power, City Planning, Highway, and Sanitary Engineering Divisions held interesting technical sessions that were well attended.

The social features of the meeting and the excursions were particularly enjoyable. On Tuesday evening, October 22, the Ann Arbor members tendered a dinner to the members of the Board of Direction and the ladies of their families at the Michigan Union, at which about 80 were present.

The informal dinner and social evening at the Hotel Tuller on Thursday, October 23, as well as that given at the Detroit Yacht Club on Friday, October 24, were delightful functions. Many plans had also been made for the entertainment of the ladies during the meeting of the Board of Direction and during the Technical Sessions.

On the afternoon of Friday, October 24, the members and their guests had the opportunity of visiting the many points of engineering interest about Detroit. In addition to the trips scheduled on the program, provision had been made whereby members were taken to any engineering work of interest they wished particularly to visit.

The technical program for Saturday, October 25, consisted of a meeting of the City Planning Division during the forenoon, followed by an automobile drive in the afternoon. For those not interested in the Technical Meeting, Saturday morning was spent at Ann Arbor in an inspection tour of the grounds and buildings of the University of Michigan, members of the Student Chapter of the University acting as guides. Following a luncheon at the Michigan Union, the party attended the Michigan-Wisconsin football game at Ferry Field. This feature terminated an interesting and enjoyable Fall Meeting.

Meeting of the Board of Direction

This is an abstract of the notes of the Assistant Secretary and subject to approval by the Board of Direction at its next meeting.

The regular meeting of the Board of Direction was held at the Michigan Union, Ann Arbor, Mich., on Tuesday and Wednesday, October 21 and 22, and at the Hotel Tuller, Detroit, Mich., on Thursday, October 23, 1924, the following being in attendance: President Grunsky; Assistant Secretary C. E. Beam, acting as Secretary; and, also, Messrs. Bowen, Bush, Chester, Condron, Davison, Dyer, Farnham, Fenkell, Freeman, Holmes, Howe, Huber, Loweth, Maitland, Marston, Mason, Merriman, Paul, Ridgway, Webster, Winsor, Yates, and Treasurer Hovey.

In respect to the memory of the late Secretary John H. Dunlap, the members of the Board stood in silence for a moment.

Committee on Districts and Zones:

Among the important matters on which the Board took action was the report of the Committee on Districts and Zones, which, on motion, was adopted, as follows:

"Your Committee on Districts and Zones has given careful consideration to several proposed changes in the present boundaries of the Districts of the Society, especially to the changes suggested by the Los Angeles and Colorado Local Sections of grouping Lower California and Arizona into a separate District.

"Inasmuch as your Committee has been advised by the Board that it will not look with favor at the present time upon increasing the number of Directors of the Society from 18 to 19, as would be necessary to carry out the suggestions of the Colorado Section your Committee reports that in its opinion no changes should be made in the present districting during the coming year 1925."

Public Relations Committee:

A report of the Sub-Committee on Reorganization of Federal Departments was presented and the question of Federal reorganization was discussed. The Board went on record as favoring the rejection of the program of the Congressional Joint Committee on Federal Reorganization, and adhering to the support of such reorganization substantially as outlined in the Jones-Reavis Bill.

The following letters from Lansing H. Beach, Maj. Gen., U. S. A. (Retired), M. Am. Soc. C. E., and C. O. Sherrill, Lieut. Col., U. S. A., M. Am. Soc. C. E., dated June 24 and June 26, 1924, respectively, that had been referred to the Public Relations Committee and its Sub-Committee on Federal Reorganization by the Executive Committee, were ordered published, together with the letter in reply to General Beach, a copy of which was ordered sent to Colonel Sherrill. The letters of General Beach and Colonel Sherrill are, as follows:

"WASHINGTON, D. C.

"June 24, 1924.

"THE BOARD OF DIRECTION,
AMERICAN SOCIETY OF CIVIL ENGINEERS,
33 West 39th Street,
New York, N. Y.

"GENTLEMEN.—Some time ago your secretary transmitted to me a copy of a report dated April 8, 1924, by the Committee on Public Relations to the Board of Direction of the American Society of Civil Engineers, concerning the testimony given by Colonel Sherrill and myself before the Joint Committee of Congress on the Reorganization of the Executive Departments. An unusual rush of matters which has demanded more time than was actually available has prevented an acknowledgement and reply until now.

"Colonel Sherrill's reply to the criticisms against his testimony has been forwarded by him, and it will be seen that he did nothing more in giving his testimony than state some of the salient expressions contained in an official government report made after an extended investigation by a committee of Congress.

"The portion of my own testimony which has been construed by your committee as an attack upon the Society and upon professional men and manufacturers appears to consist of two statements. One was that the cost-plus percentage system of contract was not used in France. The other was that 'if my recollection is correct' the Chamber of Commerce of the United States had voted against the establishment of a Department of Public Works.

"As to the first your committee goes on to state that such a contract was made by General Rose with a certain company. Such a contract was made but it can not be claimed that it was used. It was cancelled after the contractor had done but little work, so little that my statement can not be regarded as otherwise than correct.

"With regard to the second, attention is invited to the form of statement which implied uncertainty on my part, but it is maintained that the discrepancy is not material. The Chamber did vote in favor of a Department of Public Works, but it also voted against taking river and harbor works away from the Corps of Engineers. Your committee and yourselves think that this discrepancy something worthy to be brought to the attention of the Secretary of War at the same time that a prominent technical journal, which has for some time past gone out of its way to attack the Corps of Engineers, was declaring in an editorial—

"It is becoming increasingly apparent that the campaign for a federal Department of Public Works is to succeed or fail on the issue of the removal of non-military engineering activities from under the control of the Corps of Engineers of the army."

"Your committee continues: 'The Committee is amazed at the character of these attacks and the inaccuracies which are contained in this testimony' and then proceeds to cite the two instances just noticed. If the committee is interested to see fair play why did it not take notice of the resolution recently presented and adopted by the Board of Direction declaring that the work now in progress at Muscle Shoals is not being economically performed. As far as I have been able to ascertain, no evidence or data were presented to the Board to justify this assertion and yet your committee makes no protest. It was an accusation against the Corps of Engineers, examination might establish its falsity; therefore let it go without question.

"There was a time when the American Society of Civil Engineers stood for all that was honest and honorable, when it stood for equal treatment of every class of its members, and neither allowed itself to be the tool of any clique or faction nor to become the advocate of any special interests. You,

Gentlemen of the Board of Direction, are intrusted with the duty of seeing that the Society lives up to its traditions in this respect. I submit that it is highly inappropriate for a committee to retain in the preparation of a report a member who is so deeply concerned in the subject matter as to be incompetent to act as a judge in the issue under all methods of procedure recognized where an impartial statement is desired. I can not help claiming that you gentlemen should have required a report from entirely disinterested parties before adopting such a resolution. I am making no charges against the third signer of the report, but I do maintain that it would have been more becoming in him to have refrained from participation, considering his former connection with the matter under discussion, and especially after he had been personally requested by the secretary of the Associated General Contractors of America, at the suggestion of R. C. Marshall, Jr., the General Manager of that organization, to induce the Board of Directors of the American Society of Civil Engineers to adopt the draft of the report submitted to him. By adopting such a report under such circumstances, you gentlemen have laid yourselves open to the feeling on the part of many members that either you are influenced by prejudice against one class of your membership or that you act as directed by certain influential interests.

"If the Board of Direction desires military members in the organization, it ought to treat them fairly and not adopt, without giving them a hearing, resolutions condemning them and their actions, or complaining to the Secretary of War as you have now done for the third time within a short period. We have no desire to stay where we are not wanted, and must insist either that we be informed if our membership is not desired, or, if it is, that we be accorded equal treatment with the Associated General Contractors.

"I have to request that this letter be given equal publicity to the resolution adopted by you and furnished me by your secretary.

"Very truly yours,

"LANSING H. BEACH,

"Major General, U. S. Army, Retired."

"WAR DEPARTMENT

CORPS OF ENGINEERS

"Office of Public Buildings and Grounds

Washington, D. C.

"June 26, 1924.

"THE BOARD OF DIRECTORS,
AMERICAN SOCIETY OF CIVIL ENGINEERS,
33 West 39th Street,
New York, New York.

"DEAR SIRS.—Receipt is acknowledged of the notice of your action of April 8th, upon a report of the Committee on Public Relations of the American Society of Civil Engineers.

"The Committee on Public Relations has seen fit to severely criticize remarks made by me and your Board has seen fit to accept these criticisms and as a token of your approval thereof to transmit copies of the same to the Secretary of War.

"The statements made by me and to which exception is taken were based on facts determined and publicly enunciated by the 'Select Committee on Expenditures in the War Department' of the House of Representatives, Honorable William J. Graham, Chairman. These conclusions will be found in

Report No. 816, 66th Congress, 2d Session, House of Representatives, House Calendar No. 190.

"Without undertaking to cite the multitude of statements in the evidence taken before this Select Committee on Expenditures and without undertaking to repeat all of their findings and recommendations bearing on the subject under discussion, I wish to cite several of the findings and recommendations, which appear to me to be ample authority for the statements made by me before the Joint Congressional Committee on Reorganization.

"I am quoted as saying that 'Had such an arrangement existed previous to the late European war, it is doubtful if the Government would have been subjected to the tremendous waste and graft that was connected with the construction activities suddenly thrown upon the War Department without an adequate engineering organization in existence to handle the emergency.'

"Also 'Take the graft and absolute loss of funds through graft to the Government of over \$80 000 000 in building camps. I feel no hesitation in saying that if that work had been under the Corps of Engineers, which as small as it was had the organization and the esprit de corps, that would never have happened; and, in fact, it did not happen in France where, under much greater difficulties they did equally as great work without a single criticism.'

"The following quotations from the findings and recommendations of the Select Committee on Expenditures in the War Department are pertinent:

"Your committee believes that a serious and very costly error was made in not placing at least the engineering and utilities construction program at these cantonments in the hands of the Corps of Engineers. And your committee submits in support of this finding the accomplishment of the Engineer Corps in France under much more uncertain and difficult conditions, as to personnel, labor, tools, material, knowledge of terrain, continual likelihood of harassment of hostile forces, and other extremely harassing factors.' (p. 137.)

"Your committee finds that the fact that there was waste and inefficiency is admitted by those responsible for the adoption of the system, and charged with its administration. And the conclusion is inescapable that such waste spelled both delay and increased costs, and that the system failed, even by the admission of its advocates and administrators. And for that reason your committee finds the recent defense of the system by the Construction Division in its annual report, just printed, incomprehensible and inexcusable.'

"Your committee finds that the error at the inception, which led to the grave results disclosed, lay in part in not using, consulting, or coordinating the various agencies of the Government that were in existence. Under this head should be enumerated the following:

"(a) Failure to forthwith turn over engineering problems of all kinds to the very excellent Corps of Engineers that had a large and varied experience, and was in touch with the industry, through its branches, throughout the country, and had at its command the pick of the engineers of the United States; this in disregard of Army Regulations, Section 1493, then in force.' (p. 140.)

"Your committee finds that the waste, idleness, and extravagance disclosed by the testimony taken at Camp Sherman and Camp Grant existed at other camps.

"Your committee finds that as a result of the system used the cantonments cost from 40 per cent to 60 per cent more than the amounts for which they could have been built.' (p. 141.)

"Your committee finds, based on the testimony and carefully detailed estimate of a responsible contractor, that the saving which could have been made in the construction of a camp, which has been declared by the representatives of the Construction Division to be typical, and which your committee believes to have been less extravagantly built than a number of other cantonments, that an average saving could have been made to the taxpayers of the

United States of about \$5 000 000 per cantonment, or about \$80 000 000 on the construction of the 16 National Army cantonments alone.' (p. 141.)

"NOTE: It will be noted that the waste stated above of approximately \$80 000 000 for the construction of only 16 National Army cantonments and does not include some 15 or 16 other cantonments built under the same circumstances.

"Your committee finds that all peace-time construction of buildings and quarters, as well as engineering projects of all kinds, should be entrusted to the Corps of Engineers. The sole purpose of maintaining an Army is to be ready for an emergency. Therefore, it is of the highest importance that the technical engineering branch shall be given in peace times the greatest variety of experience. Moreover, such procedure would avoid the necessity of maintaining the enormous, expensive, and extravagant duplicate branch now existing as the Construction Division, which division, throughout the emergency, set in motion and permitted the continuance of inefficient, expensive, and dilatory methods of construction, with all the attendant graft, or near graft.' (p. 141.)

"Your committee finds that the ordinary practice of having disinterested parties superintend work was not followed by the Emergency Construction Committee. Not only was the chairman himself, Col. Starrett, designated to superintend work done by the construction company of which his brother Paul A. Starrett was president, but in the instance of Maj. J. A. Pease, construction quartermaster at Camp Grodon, he supervised the work of his former employees, Lockwood, Greene & Co., whom he employed as engineers.' (p. 142.)

"The great discrepancies in the actual cost of cantonments is due entirely to the wide open cost-plus contract system employed and the opportunities which its administration offered for waste and graft.' (p. 143.)

"Your committee respectfully recommends that Congress make provision to place all engineering and construction work for the Army under the Corps of Engineers of the Army. It is moved to this recommendation by several considerations:

"1. That the Corps of Engineers is distinctly the technical branch which should handle such work.'

"2. The initial features of any construction work involve engineering. Therefore they are best fitted to start such work promptly.'

"3. They are engaged in peace times in a greater variety of engineering and construction projects than any department.'

"4. The sole ultimate purpose of having any military organization is to be prepared for an emergency. Therefore, if this corps is given in addition to its present peace-time duties all construction work, it will then obtain during peace times that complete variety of experience which will best fit it to meet the emergency.'

"Your committee respectfully recommends that Congress refer this report and the testimony taken to the Department of Justice, with the request or direction that a complete and thorough investigation be made of all cantonments and camp construction projects, to the end of bringing to book those responsible for the losses to the Government, and frauds through which they occurred, both by recoveries and merited penalties.' (p. 148.)

"The testimony given by me before the Joint Congressional Committee on Reorganization and criticised by the Committee on Public Relations of the American Society of Civil Engineers was based on the findings of the Select Committee on Expenditures in the War Department, a few of whose conclusions are quoted above.

"My statements were made from the record with the purpose of showing that the attacks being made on the Corps of Engineers, its record, its attainments, its efficiency in the execution of civil work by certain engineering

societies, certain contractors and engineers for the avowed purpose of taking the construction of river and harbor work out of the hands of the Corps of Engineers and placing it in a Department of Public Works created for the purpose of taking charge of all such construction activities, and were, I believe, fully justified by the facts.

"The statements made by me to which exception is taken by your Board and by the Committee on Public Relations were directed at evils of a system rather than at individuals or organizations and were extremely conservative as compared with the findings of the Select Congressional Committee on Expenditures in the War Department above referred to.

"At this point I feel that it would not be amiss to mention the questionable procedure of a society of the standing of the American Society of Civil Engineers in joining with other associations and engineering and contracting organizations in persistent and unjustified attacks upon the Corps of Engineers, an engineering organization in good standing and many of whose members are reputable members of the American Society of Civil Engineers. There seems to be a strong feeling among many of the civil engineers of the country and among certain contractors that the wearing of a United States uniform stigmatizes its occupant and places him in an entirely different class from other professional men who are doing similar work and with similar training.

"The organization of the Corps of Engineers is almost identically that proposed by the engineering and contracting societies for the proposed Department of Public Works, and I feel that a more adequate knowledge of the organization, methods and achievements of the Corps of Engineers by the civil engineers at large throughout the country should be fostered by the American Society of Civil Engineers, with a view to removing the misunderstandings which have been allowed to grow up largely as a result of the propaganda for the creation of a public works department.

"I request that proper publicity be given to the above communication.

"Very truly yours,

"C. O. SHERRILL,

"Lieut. Col., Corps of Engineers."

The reply to General Beach, with a copy to Colonel Sherrill, is, as follows:

"October 29, 1924

"LANSING H. BEACH, MAJOR GENERAL, U. S. ARMY (Retired)

M. Am. Soc. C. E.

Washington, D. C.

"DEAR SIR.—The Board of Direction of the American Society of Civil Engineers at its meeting of October 21, the first meeting it has held since receipt of your letter of June 24, asked me to assure you that your interpretation of any action of the Board as an attack upon the Corps of Engineers of the U. S. Army is not warranted; that, on the contrary, the Board does not believe the testimony offered by yourself and Lt.-Col. Sherrill before the Joint Committee of Congress on the Reorganization of the Executive Departments, in which testimony unfortunate and unwarranted attacks upon civilian engineers were included, represents the views of a large portion of the Corps. The Board regrets that Colonel Sherrill offers as substantiation of his charges only the findings of the so-called Graham Committee, or rather the majority report of that body which the Board believes was highly partisan. This belief is substantiated by the fact that these findings have been unsustained or have been thrown out of court in every case so far brought to trial. Your admission that you were incorrect in your statement as to the vote of the Chamber of Commerce of the United States is noted. In response to your statement that cost plus contracts were not made to cover work in France evidence is

now before the Board from sources which it must consider as reliable that work of important character was performed in France in this manner under the direction of the Corps of Engineers. In making this reference the Board does not intend it as passing adverse judgment upon this or any particular type of contract.

"The Board further offers its assurance that your inference that it has been influenced either by prejudice against one class of its members or that it has acted as directed by certain influential interests is wholly without foundation, as is your attack upon the members of one of its committees.

"A copy of this letter is being sent to Colonel Sherrill and, since you have both requested that your communications be given publicity, both will be published in the Society's *Proceedings*, together with a copy of this letter.

Very truly,

"C. E. BEAM,

"Assistant Secretary."

John R. Freeman Fund:

A committee consisting of John R. Freeman, Past-President, Am. Soc. C. E., and Thaddeus Merriman and Leonard Metcalf, Members, Am. Soc. C. E. was appointed to report on a plan for the administration of the income from the \$25 000 presented to the Society by Mr. Freeman.

On behalf of the Board of Direction, President Grunsky made a brief address and presented Past-President Freeman with an engrossed copy of the resolution of thanks and appreciation adopted by the Board of Direction for his gift to the Society, to which Past-President Freeman made a fitting response.

Committee to Study the Compensation of Engineers:

President Grunsky was authorized to appoint a committee of three to investigate the compensation of engineers and this committee was authorized to confer with similar committees of other organizations.

U. S. Air Mail Service:

The question of the expansion of the U. S. Air Mail Service and commercial flying commensurate with the safety of those engaged in these activities, was discussed and referred to the Public Relations Committee.

Prizes for Papers Awarded:

The following Medals and Prizes were awarded to authors of papers published in Vol. LXXXVII (1924) of *Transactions*:

The Norman Medal to B. F. Jakobsen, M. Am. Soc. C. E., for his paper entitled "Stresses in Multiple-Arch Dams".

The J. James R. Croes Medal to Joel D. Justin, M. Am. Soc. C. E., for his paper entitled "The Design of Earth Dams".

The James Laurie Prize to C. M. Allen, M. Am. Soc. C. E. and I. A. Winter, Esq., for their paper entitled "Comparative Tests on Experimental Draft-Tubes".

The Arthur M. Wellington Prize to Rufus W. Putnam,* Major, Corps of Engineers, U. S. A., for his paper entitled "Modern Rail and Water Terminals with Reference to Chicago".

No award of the Thomas Fitch Rowland Prize or of the Collingwood Prize for Juniors was made by the Committee.

* Now M. Am. Soc. C. E.

Meetings of Technical Divisions

Meetings of the Power, Sanitary Engineering, City Planning, and Highway Divisions were held at the Hotel Tuller, Detroit, Mich., on October 24 and 25, 1924, during the Fall Meeting of the Society, of which the following is a brief account.

Power Division

After the meeting was called to order by Chairman Daniel W. Mead, an outline of the work of the Committee on Ice Problems at Hydro-Electric Plants was presented by Francis C. Shenehon, M. Am. Soc. C. E., Chairman of the Committee. Mr. Shenehon was followed by Mr. John Murphy, Electrical Engineer, Department of Railways and Canals, Ottawa, Ont., Canada, who gave a graphic account of the difficulties with ice and the results of his methods of combatting it, illustrating his remarks with motion pictures and lantern slides.

Informal discussion of the subject was opened by John R. Freeman, Past-President, Am. Soc. C. E., who was followed by Messrs. Thomas H. Hogg, Gardner S. Williams, N. C. Grover, James S. Bowman, David B. Rushmore, and D. W. McLachlan.

At the conclusion of the discussion, a rising vote of thanks for his interesting address was tendered Mr. Murphy.

The attendance at this meeting was about 60.

Sanitary Engineering Division

The meeting, with Chairman H. P. Eddy presiding, and with an attendance of approximately 120, was opened by Robert L. Sackett, M. Am. Soc. C. E., who presented an address on "Recent Developments in English Sewage Treatment," using lantern slides to show construction, equipment, and operation data.

Dean Sackett was followed by Langdon Pearse, M. Am. Soc. C. E., whose subject, "Treatment of the Sewage of Chicago", was illustrated with slides showing maps of the District, existing and proposed systems, analysis of pollution of the Illinois River, etc. The subject was also discussed by Messrs. George W. Fuller and J. K. Hoskins, and Professor Stephen A. Forbes, of the State Natural History Survey Division, Urbana, Ill., slides being used by Mr. Hoskins to illustrate his remarks.

The meeting was closed by illustrated addresses on "Sewage Disposal Problems in the Detroit Area" and "Water Supply Problems in the Detroit Area", by Clarence W. Hubbell and George H. Fenkell, Members, Am. Soc. C. E., respectively.

City Planning Division

Two sessions of the City Planning Division were held. The first session was called to order by Charles F. Loweth, Past-President, Am. Soc. C. E., on October 24, 1924, with an attendance of about 42. The subject for discus-

sion was "Factors in the Zoning of Cities", and papers were presented by George C. Whipple, M. Am. Soc. C. E., on "The Health Bases of Zoning"; Edwin A. Fisher, M. Am. Soc. C. E., on "Zoning for Use"; Jacob L. Crane, Jr., M. Am. Soc. C. E., on "Zoning for Height"; Harland Bartholomew, M. Am. Soc. C. E., on "Zoning for Area"; Lawrence V. Sheridan, M. Am. Soc. C. E., and T. Clyde Hoffman, Attorney for the Indianapolis, Ind., City Plan Commission, on "Building Line Zoning"; Robert Whitten, City Planner, Cleveland, Ohio, on "Family Density—Regulation"; and Morris Knowles, M. Am. Soc. C. E., on "The Administration of Zoning Ordinances".

Written discussion by Messrs. W. W. Crosby, Charles W. Leavitt and Max W. Weir, William T. Lyle, and Arthur S. Tuttle, were presented in abstract, and the subject was discussed orally by Messrs. W. A. Weldin, E. P. Goodrich, Rudolph P. Miller, F. C. Bagby, Leonard S. Smith, and Albert P. Allen.

The second session of the meeting of the City Planning Division was held on October 25, 1924, with Edwin A. Fisher, M. Am. Soc. C. E., presiding. The subject for this session was "The Influence of Zoning on the Design of Public Utilities".

Chairman Fisher introduced Paul Hansen, M. Am. Soc. C. E., who presented a paper on "Drainage". This was followed by papers by T. Glenn Phillips, Landscape Architect, Detroit, Mich., on "The Street System"; Albert P. Allen, Commercial Engineer, Illinois Telephone Company, Chicago, Ill., on "The Telephone System"; C. E. Brewer, Commissioner of Recreation, Detroit, Mich., on "Recreation Facilities"; J. Rowland Bibbins, Consulting Engineer, Washington, D. C., on "Transportation"; and H. Malcolm Pirnie, M. Am. Soc. C. E., on "The Water Supply".

The presentation of the papers was followed by discussion by Messrs. E. P. Goodrich, Albert P. Allen, Morris Knowles, G. J. Requardt, Leonard S. Smith, E. M. Walker, and Charles B. Ball.

The attendance at the second session was approximately 58.

Highway Division

The meeting of the Highway Division was held on October 24, 1924, with W. K. Hatt, M. Am. Soc. C. E., in the chair, and an attendance of about 45.

The first speaker, J. G. McKay, Chief of the Division of Highway Economics, U. S. Bureau of Public Roads, addressed the meeting on "Highway Transportation Surveys", illustrating his paper with lantern slides. Discussion on this subject was opened by W. A. Van Duzer, M. Am. Soc. C. E., who was followed by H. G. McGee, Assoc. M. Am. Soc. C. E., both of whom used lantern slides to illustrate their remarks.

Discussion on "Traffic Regulation in State Highways", was opened by John N. Mackall, Chairman and Chief Engineer, Maryland State Roads Commission, who was followed by Messrs. G. C. Dillman and A. H. Blanchard, all of whom advocated uniformity in traffic regulation.

November Society Meeting

The Society meeting, November 5, 1924, was devoted to an informal discussion of secondary stresses based on the paper by Cecil V. von Abo, Jun. Am.

Soc. C. E., entitled "Secondary Stresses in Bridges" published in the September, 1924, *Proceedings*.

Owing to the absence of Mr. von Abo, who is teaching in the Technical College at Cape Town, South Africa, the Society was fortunate in having Henry S. Jacoby, M. Am. Soc. C. E., Professor Emeritus of Cornell University, give a brief digest of the author's treatment of secondary stresses. Following this, H. M. MacKay, M. Am. Soc. C. E., Dean of the Faculty of Applied Science, McGill University, Montreal, Que., Canada, discussed the work of the author and illustrated the principles involved by reference to considerable work which he had conducted to determine secondary stresses in Canadian bridges. To this study, Mr. von Abo brought a splendid collegiate training in art, pure mathematics, and applied mathematics obtained in South Africa. This equipment, combined with a faculty for intensive investigation and a capacity for hard work, makes Mr. von Abo in the opinion of his teachers, one of the greatest living experts in the general principles of secondary stresses. After two years study under Professor MacKay, Mr. von Abo went to Cornell University where he wrote the thesis on secondary stresses under the tutelage of Professor Jacoby, thus illustrating an unusual and delightful spirit of co-operation between Canadian and American colleges. Both Professors Jacoby and MacKay congratulated the Society on the publication of this worth while comprehensive study which would otherwise have been left unnoticed.

The structural features in the design of the U. S. Dirigible *Shenandoah* were described by Henry Goldmark, M. Am. Soc. C. E., who explained the physical make-up of the ship including ribs, longitudinals, bracings, and keel, together with the loads both dead, live, and aerodynamic.

Mr. Goldmark was followed by O. H. Ammann, M. Am. Soc. C. E., who showed the results of an extensive investigation on secondary stresses by Swiss bridge engineers and the development of a modification for computation as devised by them. George E. Beggs, M. Am. Soc. C. E., Associate Professor of Civil Engineering, Princeton University, explained the application of the methods of models to the determination of secondary stresses; Charles E. Fowler, M. Am. Soc. C. E., used the Niagara Arch as an example of secondary stress determination; and Shortridge Hardesty, M. Am. Soc. C. E., explained still another method of obtaining secondary stresses by means of a series of approximations. All the foregoing addresses were fully illustrated by lantern slides. In addition, D. B. Steinman and O. E. Hovey, Members, Am. Soc. C. E., spoke briefly.

The value of this important subject and the interesting discussion is attested by the generous attendance (about 85) a large proportion of whom remained until Chairman Lincoln Bush declared the meeting adjourned at 11:10 p. m.

Annual Meeting of the American Society of Mechanical Engineers

According to an advance announcement, the Annual Meeting of the American Society of Mechanical Engineers, to be held in the Engineering Societies Building during the week of December 1, 1924, promises to be both

interesting and instructive. The first day, Monday, will be devoted to general Society activities, including the Council Meeting, a Conference of Local Section Delegates, and a public hearing on power test codes. All day Tuesday, Wednesday morning, and all day Thursday, will be devoted to the consideration of special topics; such subjects as turbines, textiles, machine design, refrigeration, use of oil for power, and hydraulic engineering will be considered. The business meeting and special conferences will take place on Wednesday afternoon. Of especial interest to Civil Engineers will be the session of Thursday afternoon, December 4, at which the design of penstocks and the study of draft-tube design will be considered. Social events during these meetings will include an open house on Monday evening, the President's reception on Tuesday evening, and the Annual Dinner on Wednesday evening. In addition, the Woman's Auxiliary has arranged interesting entertainment for visitors among the ladies.

Engineers as Others See Them

In connection with the ceremonies attending the erection of the last structural member for the new Peekskill Suspension Bridge across the Hudson River, a descriptive article in *The New York Times* failed to mention the name of the designer of the bridge. This fact was called to its attention by W. S. Kinnear, M. Am. Soc. C. E., President of the American Institute of Consulting Engineers, who wrote *The Times* as follows:

"I am prompted to write you, wondering if it is considered unethical, in the publication of such articles, to mention the name of the man who was responsible for the design and construction. To me he seems entitled to more than ordinary consideration and honorable mention. I am also wondering if the consulting engineer is no longer a factor in the world's affairs, and, if such is the tendency of the times, what can be done to again place him where he rightfully belongs."

The newspaper admitted its error and gladly named Howard C. Baird, M. Am. Soc. C. E., who was the designer and supervising engineer of the structure. It concluded:

"The world of to-day is as little inclined as is *The Times* to ignore or depreciate the services of engineers. They are modest men, doing little or nothing to gain recognition outside of their own circle. Often they do the work and let others who are eager for publicity get it all. That is an admirable trait, but sometimes it results in confusing the public and diverting its appreciation from proper objects."

Chicago Sanitary District Appoints Advisory Engineering Commission

A study of the needs of the Sanitary District of Chicago in relation to the available water supply in Lake Michigan and the existing water level has been under way for some time. As an independent check on its own conclusions the District has recently appointed a special commission of twenty-five eminent engineers from various parts of the United States who are to make an intensive study of this same problem. This body includes the following: W. W. DeBerard, Chicago, Ill.; G. G. Earl, New Orleans, La.; Harrison P.

Eddy, Boston, Mass.; G. H. Fenkell, Detroit, Mich.; John R. Freeman, Providence, R. I.; James H. Fuertes, New York, N. Y.; George W. Fuller, New York, N. Y.; Professor John H. Gregory (Johns Hopkins University), Baltimore, Md.; C. E. Grunsky, San Francisco, Calif.; Dean E. E. Haskell (Cornell University), Hamburg, N. Y.; J. F. Hasskarl, Philadelphia, Pa.; T. Chalkley Hatton, Milwaukee, Wis.; John B. Hawley, Fort Worth, Tex.; R. E. Horton, Albany, N. Y.; C. W. Hubbell, Detroit, Mich.; Wynkoop Kiersted, Kansas City, Mo.; Morris Knowles, Pittsburgh, Pa.; J. L. Ludlow, Winston-Salem, N. C.; R. R. Lyman, Salt Lake City, Utah; Dean Anson Marston (Iowa State College), Ames, Iowa; Arthur E. Morgan, Dayton, Ohio; Dr. F. H. Newell, Washington, D. C.; Paul H. Norcross, Atlanta, Ga.; A. E. Phillips, Washington, D. C.; Col. Charles S. Riché, U. S. A., St. Louis, Mo.; Francis Lee Stuart, New York, N. Y.; Ezra B. Whitman, Baltimore, Md.; and Professor S. M. Woodward (Iowa State University), Iowa City, Iowa. Of the foregoing, Messrs. DeBerard and Lyman are Associate Members of the Society, while the others are Members.

Progress of Engineering Foundation

Engineering Foundation was instituted in 1914, the first gift for endowment, \$200 000, being delivered to United Engineering Society as Trustee on February 24, 1915. Members of the Foundation Board were elected March 25, 1915, and met for organizing on April 15 of that same year.

As the World War was then in progress and sufficient income had not accumulated to warrant independent research of magnitude, it was decided to devote the available funds to the organizing of engineers and scientists in preparation for National defense. Thus, in June, 1916, under the leadership of the National Academy of Sciences and the Founder Societies, the National Research Council was created, to which Engineering Foundation proffered its income and provided offices in the Engineering Societies Building. Dr. Cary T. Hutchinson was appointed Secretary. This aid in establishing the Research Council is one of the greatest services Engineering Foundation has rendered. The Research Council has grown until it now occupies a beautiful building near the Lincoln Memorial in Washington, D. C. Space for its New York office is loaned by Engineering Foundation.

An important research, early undertaken and still in progress, is devoted to the problem of fatigue in metals, in co-operation with the National Research Council and the University of Illinois. Several sources contributed to carry on this work: Engineering Foundation gave \$30 000; several commercial organizations, including the General Electric Company, Allis-Chalmers Manufacturing Company, Western Electric Company, and the Copper and Brass Research Association donated in all \$61 000, besides services and materials; and the University of Illinois during five years has given services, facilities, and publications valued at \$50 000.

Among the research projects of its Founder Societies, which the Foundation has aided, may be mentioned investigations of concrete and reinforced concrete arches, steel columns for bridges and buildings, and of mining

methods, for all of which work Engineering Foundation appropriated about \$15 000 and other sources in the aggregate more than \$100 000. Further, Engineering Foundation has joined with the National Research Council in the world-wide Marine Piling Investigation, in establishing the Advisory Board on Highway Research and the American Bureau of Welding, and in compiling a directory of research laboratories in United States industries.

In response to requests from engineers in the Far West, the Arch Dam Investigation was organized. The States of California and Oregon, the U. S. Bureau of Reclamation, the City of San Francisco, several power companies, four universities, and a number of engineers in this and other countries are co-operating. Under the leadership of W. A. Brackenridge, M. Am. Soc. C. E., Vice-President of the Southern California Edison Company, a special fund of \$100 000 is being raised for the construction of a test dam 60 ft. in height, upon which extensive experiments during and after construction will be performed. Subscriptions of the companies and the Foundation total \$50 000 to date. In addition, observations on existing dams and dams under construction are in progress.

Among the publications of Engineering Foundation may be mentioned the Directory of Hydraulic Laboratories in the United States and the Research Narratives. Since January, 1921, the Narratives have received wide distribution and favorable comment; the first fifty have been republished in a book which is being sold at fifty cents a copy, with a wide distribution.

A summary of its finances for nine years ending December 31, 1923, shows a total income of \$169 600, with expenditures as follows:

Aid in establishing National Research Council.....	\$10 500
Support of Division of Engineering and Industrial Research	26 000
Research projects.....	57 000
Promotion of research.....	17 200
Administrative expenses.....	24 300
<hr/> Total expenditures.....	<hr/> \$135 000

There was accumulated for commitments and unforeseeable opportunities or emergencies, a reserve of \$34 600.

Mr. Swasey's total contribution is \$500 000; in addition, he has given much intelligent thought and a keen interest to this work. Recently, this endowment has been further increased by a legacy of \$50 000 from Mr. Henry R. Towne, of Yale and Towne Manufacturing Company, who died October 16, 1924. This contribution from an engineer and manufacturer, a Past-President of the American Society of Mechanical Engineers, is a notable testimonial by a man of unusually wide and varied interests to the high importance of research to the engineering profession and the industries of the United States.

Many usual projects of the Societies and the Foundation await larger resources. Nevertheless, by using its funds to inspire, aid, and supplement, the Foundation has accomplished co-operatively some noteworthy results. As it approaches the end of its first decade, it looks forward to a future of greater

service with the united support of the Profession, of the industries, and of individuals who have built fortunes upon Engineering.

Clifford M. Holland

In the death of Clifford M. Holland, a Director of the Society, on October 27, 1924, engineering and municipal circles of New York received a distinct shock. Following a physical breakdown several weeks previous, Mr. Holland had been in a sanitarium at Battle Creek, Mich., and was recuperating from a minor operation when his death occurred suddenly from heart failure. The day of the funeral services came on the occasion of the holing through of the new Vehicular Tunnel under the Hudson, to which Mr. Holland had given five years of devoted service as Chief Engineer; the irony of this coincidence received wide notice in metropolitan daily papers which gave remarkable tributes to the engineer's place in present progress and particularly to Mr. Holland's own success.

Mr. Holland held an enviable position as representative of the younger resident membership; in Society affairs he was most active and always willing to give personal assistance in furthering the Society welfare. In the official deliberations of the Board of Direction, he will be sorely missed.

Funeral services were held in Brooklyn, N. Y., and were largely attended by members of the Society. The interment was at Somerset, Mass., where Mr. Holland was born in 1883. Among those who went to Somerset were Robert Ridgway, Frank E. Winsor, J. Waldo Smith, Milton H. Freeman, Jesse B. Snow, and Ole Singstad, Members, Am. Soc. C. E.

On November 12, 1924, the New York and New Jersey Tunnel Commissions adopted a joint resolution officially designating the new tube as the Holland Tunnel. Thus, in name as well as in fact, Clifford M. Holland's greatest engineering achievement becomes his monument.

President Grunsky Visits Local Sections

After attending the Centenary Celebration of Rensselaer Polytechnic Institute at Troy, N. Y., and previous to the Fall Meeting of the Society at Detroit, Mich., President Grunsky found time to visit a number of Local Sections.

At Philadelphia, Pa., on October 6, 1924, a dinner in his honor was followed by an evening meeting with an attendance of about 60, at which the relation of the engineer to public affairs and the World's Engineering Congress, 1926, were the principal topics of discussion.

The Lehigh Valley Section held an evening meeting at Bethlehem, Pa., on October 7, with an attendance of about 20. During the afternoon, opportunity was afforded to inspect the new Hill-to-Hill Bridge almost completed and to enjoy an automobile drive through the grounds of Lehigh University.

At New Haven, Conn., President Grunsky was entertained on the evening of October 9 at a dinner meeting of the Connecticut Section, while his daughter, Miss Clotilde Grunsky, an Associate Member of the American Institute of Electrical Engineers, enjoyed the hospitality of the ladies at the Lawn Club.

The Northeastern Section arranged a meeting at Boston, Mass., with a buffet dinner at the rooms of the Affiliated Engineering Societies on October 10. This meeting was well attended and after a brief reference to Society affairs, President Grunsky called attention to the lack of engineers in public life and to the need of greater attention by engineers to the shaping of the Nation's policies on such matters as the regulation of stream flow, reforestation, U. S. shipping, and other similar matters.

At Providence, R. I., about 18 members of the Providence Section assembled at dinner on the evening of October 11 to greet President Grunsky. At this meeting the congestion of traffic on city streets and contemplated and possible remedies were the principal subjects of discussion.

The Syracuse, N. Y., Section arranged a dinner meeting, with ladies present, on October 14, at which the attendance was about 50. President Grunsky indulged in reminiscences of experiences at Washington and on the Isthmus of Panama.

At Buffalo, N. Y., time did not permit the holding of a formal meeting. A number of members, however, assembled at luncheon and again at dinner on October 15 to greet President Grunsky. During the afternoon a visit was made to the Niagara Falls Power Plant.

On October 29, Mr. Farley Osgood, President of the American Institute of Electrical Engineers, and President Grunsky were entertained at luncheon by the Associated Engineers of Spokane, Wash. The luncheon was well attended, about 65 being present. Brief addresses with particular reference to the engineer in his relation to public affairs were made by Presidents Osgood and Grunsky.

At Seattle, Wash., on October 30, President Grunsky and his daughter were the guests of the Western Washington Section. - An afternoon assembly of about 400 engineering students of the University of Washington was addressed by President Grunsky. The day's entertainment included a dinner meeting of the Section, with ladies present, at the Seattle Engineers Club. About 45 were in attendance at the dinner.

A visit to the Portland Section was enjoyed on October 31. President Grunsky and his daughter were entertained at a dinner meeting by the local engineers and their wives, which was followed by a Halloween dance. The attendance was about 40.

Impact in Highway Bridges

A meeting of the Society's Special Committee on Impact in Highway Bridges was held on September 15, 1924, at Ames, Iowa. The meeting was called primarily to make an estimate of the work to be undertaken by the Committee in 1925, and to observe the action of the U. S. Bureau of Standards' twelve-element, remote recording strain gauge which was made for, and purchased by, the Society and assigned to the Committee.

A study of this and other instruments in action and a review of the progress of the work to date convinced the Committee that a final report this year would not be justified, but that the natural extension of existing work and other avail-

able data would probably warrant one for impact on highway bridge floors at the Annual Meeting in January, 1926.

Other investigations for impact which the Committee agreed should be studied in connection with the problem, are those included in papers entitled "Highway Research in Illinois"* by Clifford Older, M. Am. Soc. C. E.; "Researches on the Structural Design of Highways by the United States Bureau of Public Roads,"† by A. T. Goldbeck, Assoc. M. Am. Soc. C. E.; and "The Motor Truck Impact Tests of the Bureau of Public Roads",‡ by Earl B. Smith.

The Committee decided that the strain gauge should be re-assigned to the Ames Project for the season of 1925, or for as much of that season as would be needed to complete that work.

The purchase by the Society of three auxiliary but necessary pieces of apparatus, to be considered a part of the electrical extensometer previously purchased through the Bureau of Standards, was also recommended.

Conference of Engineers at Richmond, Va.

A Joint Meeting of the Virginia Sections of the Society, of the American Society of Mechanical Engineers, of the American Institute of Electrical Engineers, of the American Association of Engineers, of the National Association of Cost Accountants, of the Society of Industrial Engineers, and of the Management Association, and Taylor Society was held at the Jefferson Hotel, Richmond, Va., on October 17, 1924.

An inspection trip was made to Richmond's new filtration plant which was completed in September at a cost of \$700 000. The water supply which is taken from the bed of the James River is filtered and purified by the most modern and improved methods. The plant is said to rank with the most efficient in the United States.

Following the inspection of the plant the delegates listened to several interesting technical papers. F. F. Harrington, M. Am. Soc. C. E., spoke on "The Equipment and Operation of the Virginia Railway Coal Pier, No. 2, Sewalls' Point". Mr. W. Leonard Thompson, of the U. S. Department of Commerce, gave addresses on "A Mercantile Census" and "The Domestic Commerce Division". Mr. Louis W. Shipley, of the Alfred J. Forschner Company of Philadelphia, Pa., spoke on "Material Handling Industrial Trucks", and A. L. Hartridge, M. Am. Soc. C. E., addressed the Conference on the method used for determining unit prices based on costs in the construction industry.

Engineering Changes in the U. S. Bureau of Reclamation

The resignation of F. E. Weymouth, M. Am. Soc. C. E., as Chief Engineer of the Reclamation Service which took effect at the end of October, 1924, has been announced. It is reported that Mr. Weymouth has accepted a more lucrative position in private practice. It is understood that Dr. Elwood Mead, M. Am. Soc. C. E., Commissioner of Reclamation, plans additional studies by

* *Transactions*, Am. Soc. C. E., Vol. LXXXVII (1924), p. 1180.

† *Proceedings*, Am. Soc. C. E., April, 1924, p. 453.

‡ *Public Roads*, March, 1921, p. 3; December, 1921, p. 1.

Congress as to the administration of the Service. Meanwhile, the duties of Chief Engineer are to be taken over by Raymond F. Walter, M. Am. Soc. C. E., who has been appointed Acting Chief Engineer.

Advisory Committee on Structures and Fabricated Metals

A number of Government departments, engineering societies, commercial organizations, and private individuals have formed an Advisory Committee on Structures and Fabricated Metals for the purpose of furthering knowledge and investigation of structural materials, machine metals, etc. Among the items of research already undertaken may be mentioned the strength of steel columns, the strength of brick walls, the tests in connection with the Delaware River Bridge, the allowable loads on corrugated sheet zinc roofing, and tests on riveted joints. The first meeting of the Committee was held May 20, 1924. It is expected that at least yearly meetings will be held in the Spring. The Society is represented officially by T. L. Condron and F. H. Constant, Members, Am. Soc. C. E., beside a large number of individual members who are familiar with and interested in the subject matter of the investigations.

Recent Appointments to Committees

Representatives of the Society appointed to serve on various committees include:

Sectional Committee on Underground Transportation in Coal Mines and the Sectional Committee on Drainage in Coal Mines, H. S. Smith, M. Am. Soc. C. E.

Conference on the "Simplification of Manhole Frames and Covers for Street Use", Robert B. Morse, M. Am. Soc. C. E. This Conference was held at the Department of Commerce, Washington, D. C., Wednesday, October 29, 1924.

Conference on a Schedule of Proposed Sheet Steel Simplification, Frederick T. Llewellyn, M. Am. Soc. C. E. October 14, 1924, was the date for this Conference, in which the Division of Simplified Practice of the U. S. Department of Commerce was interested. Headquarters were at the Marlborough-Blenheim Hotel, Atlantic City, N. J.

Celebration of the 100th Anniversary of the Invention of Portland Cement, Professor A. N. Talbot, University of Illinois, Past-President, Am. Soc. C. E. The Portland Cement Association sponsored this Centenary Celebration which took place on November 19, 1924, at the Blackstone Hotel in Chicago, Ill.

Local Sections*

Central Illinois.—October 10, 1924. Mr. W. D. P. Warren presented an interesting paper on "A Middle Line Method of Valuation of Public Utilities". Animated discussion followed. Mr. W. S. Todd of the Illinois Highway Department spoke on the \$100 000 000 road bond issue and answered questions concerning it. Attendance 32.

Cincinnati.—October 14, 1924. The resignation of President Brooke was accepted with regret. L. F. Harza, Chief Engineer of the Dix River Dam, Kentucky, gave an interesting talk on the dam, illustrating his remarks by moving pictures. Attendance 29.

Duluth.—October 20, 1924. William E. Hawley was elected Secretary of the Section. An interesting talk was given on the subject of "The Variant" by Dr. F. J. Hirschboeck who discussed the variations from the normal type of human being as illustrated by instances of criminality, and the proper way to solve the difficulties presented by under-developed and disordered minds. Attendance 22.

Georgia Section.—October 17, 1924. Fall Meeting. "Influence of Growth of Vehicular Traffic on the Railroads" and "Grade Crossing Elimination" were the subjects of the meeting. Mr. Hunter McDonald formally presented the attitude of the railroad, the public side of the questions being discussed by Mr. C. Murphy Candler. At a dinner held at the Biltmore Hotel, at Atlanta, an address was given by Mr. Robert C. Alston on "Trends in Governmental Ownership and Control". Attendance 30.

Kansas City.—October 14, 1924. Mr. C. E. Donnelly gave a progressive report on the traffic census made by the Engineers' Club of Kansas City. Mr. Donnelly was followed by Mr. E. E. Howard who spoke of the building code for Kansas City which is about to be presented to the City Council for adoption. A general discussion ensued, bringing out some interesting points in connection with the code. Mr. L. B. Roberts spoke of his contemplated trip to Asia, as Geographer to the expedition conducted under the auspices of the American Museum of Natural History, to make a scientific exploration of the interior of Mongolia. Attendance 30.

New York.—October 15, 1924. At the opening meeting of the 1924-25 season the custom of holding a dinner preceding the meeting was inaugurated. This plan proved successful and 83 persons were in attendance. The subject of the meeting was "The Radio Industry" and papers were presented by Maj. Gen. James G. Harbord, President of the Radio Corporation of America, and Dr. A. N. Goldsmith, Chief of the Technical and Testing Department of the Radio Corporation of America. Attendance 120.

North Carolina.—August 11-13, 1924. Annual Convention.

August 11, 1924. Mayor Cathey delivered an inspiring address of welcome on "The Engineer and City Building". Responses were made by Messrs. Gilbert C. White and Joseph Hyde Pratt. The Constitution of the Section was read and approved. Attendance 26.

* For list of Local Sections, Officers, Rules, etc., see 1924 Year Book, p. 27.

August 12, 1924. Professor G. M. Braune presented a paper on "The Present Trend of Engineering Education", and Mr. Frank T. Miller spoke on "A Modern Control System for City Surveys". These papers were followed by discussion. Attendance 28.

August 13, 1924. Mr. A. C. Lee presented a paper entitled "Progressive Development of the Catawba River". Owing to the enforced absence of Mr. H. V. Joslin, his paper, "Present Trend in Construction of High-Tension Transmission Lines", was read by Professor Braune. The papers were informally discussed. Attendance 27.

Northwestern.—October 10, 1924. The following officers were elected: President, A. M. Burt; First Vice-President, Frederic Bass; Second Vice-President, A. S. Cutler; Secretary-Treasurer, E. G. Briggs. Attendance 20.

Portland.—May 23, 1924. The Oregon State Agricultural College Student Chapter was given charge of the meeting after the business of the Section had been transacted. The three successful candidates in the 1924 Prize Contest presented their papers. "Engineering Education", by Mr. Glenn Miller, was awarded the first prize; "Muscle Shoals Project", by Mr. Joseph Armstrong, the second prize; and "Siphon Spillways", by Mr. Arthur Cramer, the third prize. Attendance 26.

Sacramento.—September 16, 1924. Mr. Stephen E. Kieffer, of San Francisco, Calif., addressed the Section on the proposed development of the Mokelumne River by the East Bay Cities Utility District. Attendance 20.

September 23, 1924. The candidacy of Robert L. Jones as Director of the Sacramento Municipal Utility District was endorsed by the Section. Attendance 23.

September 30, 1924. The appointment of Edward Hyatt, Jr., as Chief of the Division of Water Rights of the State Department of Public Works, was announced. Attendance 17.

October 7, 1924. Rules of Procedure for the Engineering Council in Sacramento were approved. At the fourth monthly joint meeting of the Section and the Sacramento Chapter of the American Association of Engineers, Ben H. Milliken, Superintendent of Prison Road Camps, California Highway Commission, gave an address on "Building Roads and Men". Attendance 39.

October 11, 1924. Seventeen members of the Section and their guests visited Pitt River where they were entertained by the Pacific Gas and Electric Company. On the following day an inspection trip was made to Pitt River Power Plants Nos. 1 and 3. The party returned to Sacramento by way of Mt. Shasta where a stop was made at Mud Creek to observe the effects of the mud flow.

San Francisco.—August 19, 1924. After a dinner at which 45 members and guests were present, the business meeting of the Section was held. The program of the evening, which followed, was opened by C. P. Jensen, County Surveyor, Fresno, Calif., who presented a paper on the "Fresno County, California, Highway System". Several members contributed discussion to this subject. Attendance 60.

Engineering Societies Library

The services of the Engineering Societies Library are available to all members who wish searches, copies, translations, etc., or advice on technical literature. A collection of modern books is also available for loan to members in North America, at moderate rentals. Correspondence should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of work. A more comprehensive statement in regard to this matter will be found on pages 49 and 50 of the Year Book for 1924.

Book Notices*

(October 1 to October 31, 1924)

Bureau of Foreign and Domestic Commerce. By Laurence F. Schmeckebier and Gustavus A. Weber. (Inst. for Government Research. Service Monographs, No. 29.) Balt., Johns Hopkins Press, 1924. 180 pp., 9 x 6 in., cloth. \$1.00.

This monograph contains an accurate, impartial history of the Bureau, its organization, its equipment, its finances and its activities, based on official documents, and the laws governing it.

Die Bisherigen Ausschlüsse Steifer Fachwerkstabe und Ihre Verbesserung. By Albert Dörnen. Berlin, Ernst, 1924. Illus., diagrams, 6 x 9 in., paper. 75 cents.

A series of investigations (1920-1923), of riveted joints in structural steelwork are described in detail, also the comparative efficiency of the various usual methods of making riveted joints, together with improved methods devised by the author.

Mehrstielige Rahmen. By A. Kleinlogel. Berlin, Ernst, 1924. Diagrams, 6 x 9 in., paper. \$6.25.

This labor-saving handbook for the structural designer discusses comprehensively, statically, indeterminate systems that occur frequently in structural work, including the most frequently used formulas for influence lines and for shearing stresses under various load conditions.

Our Harbors and Inland Waterways. By Francis A. Collins. N. Y., Century Co. [1924]. Illus., 5 x 7 in., cloth. \$2.00.

This volume, written in popular style, deals with the development of natural waterways and canals to serve inland ports. It describes harbor machinery and the construction of harbors.

Railway Transportation, Principles, and Point of View. By Sidney L. Miller. Chic., A. W. Shaw Co., 1924. Maps, tab., diagrams, 6 x 8 in., cloth. \$4.00.

This is a discussion of the American railroad "problem" from the point of view of the public. After a discussion of the relation of transportation costs to social and trade development, it shows the growth of the railroad system, the existing grouping of railroads by ownership as well as by territory, and the economics of operation. The author discusses the railroad as a competitive enterprise, its capitalization, and the growth of co-operation. He explains the different bases for determining the true worth of railroads; also, the questions of rate-making and of Government regulation.

* The statements made in these notices are taken from the books themselves, and this Society is not responsible for them. Unless otherwise specified, the books in this list have been donated by publishers.

Current Civil Engineering Literature

Key to Abbreviated References to Publications Indexed*

Abbreviated References.	Publication.	Place.
Am. C. Inst.....	American Concrete Institute, Proceedings (Y.)	Detroit
A. I. E. E.....	American Institute of Electrical Engineers Journal (M.)	New York
A. R. E. A.....	American Railway Engineering Association, Proceedings (Y.)	Chicago
Am. Soc. C. E.....	American Society of Civil Engineers, Proceedings (M.)	New York
Am. Soc. Mun. Impvts..	American Society for Municipal Improvements, Proceedings (Y.)	New York
Am. W. W. Assoc.....	American Waterworks Association, Journal (BI-M.)	Baltimore
Am. Wood Pres. Assoc..	American Wood Preservers Association, Proceedings (Y.)	Chicago
Ann. P. et C.....	Annales des Ponts et Chaussées (BI-M.)	Paris
Ann. T. P. Belg.....	Annales des Travaux Publics de Belgique (BI-M.)	Brussels
Assoc. Ing. Gand.....	Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand (Q.)	Ghent
Bost. Soc. C. E.....	Boston Society of Civil Engineers, Journal (M.)	Boston
Can. Engr.....	Canadian Engineer (W.)	Toronto
Cem. Eng.....	Cement and Engineering News (M.)	Chicago
Cornell C. E.....	Cornell Civil Engineer (M.)	Ithaca
Dock & Harbour.....	Dock and Harbour Authority (M.)	London
Eng.....	Engineering (W.)	London
Eng. & Contr.....	Engineering and Contracting (W.)	Chicago
Eng. Inst. Can.....	Engineering Institute of Canada, Journal (M.)	Montreal
Eng. N. R.....	Engineering News-Record (W.)	New York
Engrs. Soc. Pa.....	Engineers' Society of Pennsylvania, Journal (M.)	Harrisburg
Engrs. Soc. W. Pa.....	Engineers' Society of Western Pennsylvania, Journal (M.)	Pittsburgh
Engr.....	Engineer (W.)	London
Engrs. & Eng.....	Engineers and Engineering, Engineers' Club of Philadelphia (M.)	Philadelphia
Gen. Civ.....	Le Génie Civil (W.)	Paris
Gesund. Ing.....	Gesundheits Ingenieur (W.)	Munich
Inst. C. E.....	Institution of Civil Engineers Minutes of Proceedings (Q.)	London
Inst. Mun. & Co. Engrs..	Institution of Municipal and County Engineers, Journal (W.)	London
Int. Ry. Cong. Assoc....	International Railway Congress Association, Bulletin (M.)	Brussels
Land. Arch.....	Landscape Architecture (M.)	Harrisburg
Mech. Eng.....	Mechanical Engineering (M.) Journal of the American Society of Mechanical Engineers	New York
Mil. Engr.....	Military Engineer (M.)	Washington
Mln. & Metal.....	Mining and Metallurgy (M.) American Institute of Mining Engineers	New York
Mun. & Co. Eng.....	Municipal and County Engineering (M.)	Indianapolis
N. E. W. W. Assoc.....	New England Water Works Association, Journal (M.)	Boston
N. Y. R. R. Club.....	New York Railroad Club, Proceedings (M.)	Brooklyn
Oest. Ing. Arch. Ver....	Oesterreichischer Ingenieur und Architekten Verein, Zeitschrift (F.)	Vienna
Power.....	Power (W.)	New York
Rev. Gen.....	Revenue Générale des Chemins de Fer (M.)	Paris
Ry. Age.....	Railway Age (W.)	New York
Ry. Eng. & Main.....	Railway Engineering and Maintenance (M.)	Chicago
Ry. Rev.....	Railway Review (W.)	Chicago
Schw. Bauz.....	Schweizerische Bauzeitung (W.)	Zurich
Scl. Am.....	Scientific American (M.)	New York
Soc. Ing. Civ. Fr.....	Société des Ingénieurs Civils de France, Mémoires et Comptes Rendus (Q.)	Paris
Ver. deu. Ing.....	Verein deutscher Ingenieure, Zeitschrift (W.)	Berlin
West. Ry. Club.....	Western Railway Club, Proceedings (M.)	Chicago
West. Soc. Engrs.....	Western Society of Engineers, Journal (M.)	Chicago
Zeit. Bau.....	Zeitschrift für Bauwesen (Q.)	Berlin
Z. d. Bauver.....	Zentralblatt der Bauverwaltung (W.)	Berlin

* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

A. Applied Sciences**a. Processes of Calculation****2. Graphical and Nomographical Processes**

Nomographic Solutions for Engineering Formulae.* H. B. Muckleston. Can. Engr. Sept. 16, '24.

The Design of a Multiple-Arch System and Permissible Simplifications.* Discussion: J. Charles Rathbun. Am. Soc. C. E. Oct., '24.

3. Stresses and Strains

Foundation Test Loads as Affected by Scale. S. C. Carothers. (From paper read before Int. Mathematical Cong.) Can. Engr. Oct. 21, '24.

B. Applied Mechanics**a. Mechanics of Solids (Strength of Materials)****3. Jointed Systems**

Rail Joint Designs Presenting New Features.* Eng. N. R. Oct. 2, '24.

5. Homogeneous Inelastic Solids

Foundation Test Loads as Affected by Scale. S. C. Carothers. (From paper read before Int. Mathematical Cong.) Can. Engr. Oct. 21, '24.

b. Hydraulics**2. Physical Hydraulics**

Open-End Flume Water Meter Based on Exponential Equation.* J. W. Ledoux. Eng. N. R. Sept. 25, '24.

3. Industrial Hydraulics

Recent Advances in Hydro-Electric Engineering Practice. L. F. Harza. West. Soc. Engrs. Sept., '24.

Large Low Head Water Power Developments.* Franz Lawaczek. (Abstract of paper read before World Power Conference.) Eng. Sept. 19, '24.

Modern Water Control Apparatus.* F. Johnstone Taylor. Can. Engr. Serial beginning Sept. 23, '24.

Construction of Dams. Arthur Powell Davis. (Abstract of paper read before World Power Conference.) Eng. Sept. 26, '24.

Measures Taken in Sweden Against Ice Troubles at Water Power Plants. A. Frey Samsioe. (From paper read before World Power Conference.) Eng. Sept. 26, '24.

Modern Water Control Apparatus.* F. Johnston Taylor. Can. Engr. Sept. 30, '24.

Hydro Power Development at Ruth Falls.* L. B. McCurdy. Can. Engr. Sept. 30, '24.

The Economics of Hydro-Electric Development. Discussion: Daniel W. Mead. Am. Soc. C. E. Oct., '24.

Hydraulic Efficiency Tests on 43 000-h.p. Unit by the Gibson Method and the Allen Method.* W. R. Way. Eng. Inst. Can. Oct., '24.

La Construction de l'Usine-barrage de Chancy-Pougny.* (Construction of the Chancy-Pougny Plant Dam.) Louis Vennin. Soc. Ing. Civ. Fr. Apr.-June, '24.

La Construction et l'Entretien des Grilles pour la Protection des Turbines Hydrauliques.* (Construction and Upkeep of Gratings for the Protection of Hydraulic Turbines.) Gen. Civ. Sept. 13, '24.

Die Einheitsgrößen der Becherturbinen unter wechselnden Bedingungen.* (Characteristic Values of Bucket (Pelton) Turbines under Varying Conditions.) Georg Karras. Ver. deu. Ing. Aug. 30, '24.

Neuartige Tiefsauge-Motor-Kreiselpumpen.* (New Deep Suction Motor Centrifugal Pumps.) Constantin Redzich. Gesund. Ing. Sept. 6, '24.

C. Materials of Construction and General Processes**a. Lime, Cement, Mortar, Concrete, Brick, Bitumen, etc.**

New Studies in the Properties of Portland Cement.* Thaddeus Merriman. Eng. N. R. Oct. 23, '24.

g. Execution of Works. Specifications**1. Of Masonry**

Safe and Unsafe Settings of Ornamental Terra Cotta. Gerhardt F. Meyne. (From paper read before National Terra Cotta Society.) Eng. & Contr. Sept. 24, '24.

2. Of Concrete

Building the Nebraska University Concrete Stadium.* Eng. N. R. Sept. 25, '24.

How the Big Four Proportions Concrete.* Ry. Eng. & Main. Oct., '24.

Saving Money by Leaving Concrete Floorbeams as Ceiling.* Robert D. Snodgrass. Eng. N. R. Oct. 16, '24.

Das Gussbetonverfahren beim Bau der Doppelschleuse in Geestemünde und die Erfahrungen mit Gussbeton.* (The Cast Concrete Method in the Construction of the Double Lock in Geestemünde, and Experiences with Cast Concrete.) Arp and Gaye. Z. d. Bauver. Serial beginning Sept. 17, '24.

4. Of Metal

Measured Stresses in Columns of 18-Story Building.* Eng. N. R. Oct. 2, '24.

5. Of Reinforced Concrete

Report of the Joint Committee on Standard Specifications for Concrete and Reinforced Concrete.* Am. Soc. C. E. Oct., '24.

Einige neue maschinelle Arbeitsmethoden im Eisenbetonbau.* (Some New Machine Methods in Reinforced Concrete Construction.) G. Halder. Oest. Ing. Arch. Ver. Sept. 5, '24.

x. Miscellaneous

Industrial Flooring Materials. Charles A. Whittemore. (From *The Architectural Forum*.) Eng. & Contr. Sept. 24, '24.

h. Foundations

Sinking Pier Caissons for Four Missouri River Bridges.* L. J. Sverdrup. Eng. N. R. Oct. 16, '24.

Die Grundwasserabsenkung beim Neubau der Zürcher Kantonalbank.* (Lowering the Ground Water Level for Rebuilding the Zürich Cantonal Bank.) Schw. Bauz. Sept. 27, '24.

i. Piles and Pile Driving

Mittelbarer oder unmittelbarer Antrieb bei Rammen. Einheitliches oder geteiltes Bärge wicht.* (Indirect or Direct Drive in Pile-Driving. Single or Divided Weight of the Ram.) Friedrich Merkl. Oest. Ing. Arch. Ver. Sept. 5, '24.

k. Tunnels and Tunneling-Shields

Temperatures and Locomotive Gases in Tunnel.* S. H. Katz and E. G. Melter. Ry. Rev. Sept. 13, '24.

Die Tunnelbauten der Eisenbahnlinie Knin-Pribudic.* (Tunnel Construction on the Knin-Pribudic Railroad Lines.) Max Singer. Oest. Ing. Arch. Ver. Sept. 19, '24.

D. Highways**c. Construction**

Development of Bituminous Base and Sand Asphalt Pavements. E. R. Olbrich. (Paper read before Am. Road Builders' Assoc.) Mun. & Co. Eng. Sept., '24.

Black Base and Sand Asphalt Pavements. E. R. Olbrich. (Paper read before Am. Road Builders' Assoc.) Can. Engr. Sept. 30, '24.

Redressed Granite Block Paving in Philadelphia.* Julius Adler. Eng. N. R. Oct. 9, '24.

Design of Paved Road for Dam Top Dayton Flood Works.* C. S. Bennett. Eng. N. R. Oct. 23, '24.

d. Maintenance

Recommended Practice in Oiling Earth Roads. Wilbur M. Wilson. (From circular issued by Eng. Experiment Station, Univ. of Ill.) Mun. & Co. Eng. Sept., '24.

Repairing Breaks in Pavements. A. W. Brandt. (From paper read before Highway Conference.) Can. Engr. Sept. 16, '24.

h. Vehicles, Automobiles, Traffic

Increasing the Capacity of Existing Streets.* Discussion: A. C. Janni. Am. Soc. C. E. Oct., '24.

E. Bridges, Viaducts, and Arches**a. Timber Bridges and Viaducts**

Corrugated Culverts on the Western Pacific.* C. P. Gilmore. Eng. & Contr. Oct. 15, '24.

b. Iron or Steel Bridges and Viaducts

Humber River Highway Bridge, Toronto.* A. B. Crealock. Can. Engr. Oct. 21, '24.

Secondary Stresses in Steel Riveted Bridges.* O. H. Ammann. Eng. N. R. Oct. 23, '24.

Efforts de Vent sur les Ponts en Arc.* (Wind Pressure on Arch Bridges.) E. Battelle. Gen. Civ. Sept. 6, '24.

Beitrag zur Klassifizierung von Eisenbahnbrücken.* (Contribution to the Computation of Maximum Proper Loading of Railroad Bridges.) Winde. Z. d. Bauver. Serial beginning Sept. 3, '24.

d. Concrete and Reinforced Concrete Bridges and Viaducts

California Begins Construction of Douglas Memorial Bridge.* Harlan D. Miller. Eng. N. R. Sept. 25, '24.

Die Weinzötlbrücke bei Graz.* (Weinzötl Bridge at Graz.) Rudolf Saliger. Oest. Ing. Arch. Ver. Sept. 19, '24.

f. Suspension Bridges. Transfer Bridges

Construction Progress on Bear Mountain Bridge.* Eng. N. R. Oct. 23, '24.

h. Computations, Tests, etc.

New Iowa Tests of Truck Impact on Highway Bridges.* (From *Public Roads*.) Eng. N. R. Oct. 16, '24.

Calcul des Poutres Continues Sollicitées par un Système de Charges Mobiles.* (Design of Continuous Beams Acted upon by a System of Moving Loads.) L. Bazant. Ann. T. P. Belg. Aug., '24.

x. Miscellaneous

The Secondary Effect of Certain Important River Bridges on Local Transit Conditions.* Discussion: John A. Miller, Jr. Am. Soc. C. E. Oct., '24.

F. Inland Waters**c. Regulation of Waterways—Volume of Discharge, Freshets, Floods, Soundings**

Flood Flows of New England Rivers.* C. H. Pierce. Bost. Soc. C. E. Oct., '24.

d. Diverting Dams. Locks. Lifts. Elevators. Inclined Planes

New Type Movable Dam Guards Soo Canal Locks.* L. C. Sabin. Eng. N. R. Oct. 23, '24.

h. Boats, Barges

Le Pesage de Marchandises par le Jaugeage des Bateaux. (Weighing of Merchandise by the Measurement of Boats.) Gen. Civ. Sept. 13, '24.

G. Maritime Works

c. Vessels and Maritime Navigation. Lighthouses and Buoys. Various Signals

Tracer de Routes, Système Baule, pour le Tracé Automatique à Bord Navires.* (Plotting Routes—Baule System for Automatic Plotting on Board Ship.) Gen. Civ. Sept. 13, '24.

e. Navigation Locks

Das Gussbetonverfahren beim Bau der Doppelschleuse in Geestemünde und die Erfahrungen mit Gussbeton.* (The Cast Concrete Method in the Construction of the Double Lock in Geestemünde, and Experiences with Cast Concrete.) Arp and Gaye. Z. d. Bauver. Serial beginning Sept. 17, '24.

g. Dredges and Dredging. Force Pumps. Refloating and Removing Wrecks. Ice-Breakers
Great Seattle Tide Flats Fill. Charles Evan Fowler. (From *Dredging and Dock Engineering*.) Eng. & Contr. Sept. 17, '24.

Dredging and Land Reclamation.* Ernest Latham. Eng. Sept. 26, '24.

h. Wharves, Mooring Buoys, Harbor Equipment

Quay Construction at the Port of Marseilles.* Georges Sainflou. Dock & Harbour Oct., '24.
The Upkeep of Dock and Harbour Premises.* M. Du-Plat-Taylor. Dock & Harbour Serial beginning Oct., '24.

I. Harbors (General Articles)

The Port of Leith and the Development of Its Dock System.* Alfred H. Roberts. Dock & Harbour Oct., '24.

Rapid Strides Made in Yokohama Port Reconstruction.* K. Koyanagi. Eng. N. R. Oct. 2, '24.

Le Port de Beira, Mozambique. (The Port of Beira, Mozambique.) Luis Straus. Soc. Ing. Civ. Fr. Apr.-June, '24.

Les Aggrandissements du Port de La Rochelle.* (Enlarging the Port of La Rochelle.) Auguste Pawlowski. Gen. Civ. Sept. 27, '24.

J. Dockyard Machinery and Shipyards. Dry Docks

Floating Drydock at Vancouver.* Can. Engr. Oct. 14, '24.

H. Railroads. Street and Interurban Railways. Automobiles. Aeronautics

a. Railroads

3. Roadbed. Construction Work. Tunnels

Bauerfahrungen im Moor.* (Experience had in Railroad Construction over Marshes.) E. Gaber. Schw. Bauz. Sept. 6, '24.

4. Track

Kensington-Delavan Grade Crossing Elimination.* Ry. Rev. Sept. 13, '24.

Grade Crossings as a Municipal Engineering Problem. Eng. N. R. Oct. 9, '24.

Le Wagon Dynamomètre des Chemins de Fer de l'Etat Italien.* (Dynamometer Car on the Italian State Railway.) Gen. Civ. Sept. 6, '24.

Beitrag zur Klassifizierung von Eisenbahnbrücken.* (Contribution to the Computation of Maximum Proper Loading of Railroad Bridges.) Winde. Z. d. Bauver. Serial beginning Sept. 3, '24.

5. Signals and Safety Apparatus

A Continuous Conductive System of Train Control.* Ry. Rev. Oct. 4, '24.

Selbsttätige Zugsicherungsanlagen mit Wechselstrom unter besonderer Berücksichtigung der Anlagen der Hamburger Hochbahn. (Automatic Train Safety Equipment with Alternating Current, Especially the Equipment of the Hamburg Elevated Railway.) Carl Wolff. Ver. deu. Ing. Sept. 13, '24.

6. Rolling Stock (Locomotives, cars) Fuel

Increasing the Mobility of Freight Rolling-Stock.* (From *The Railway Gazette*.) Int. Ry. Cong. Assoc. Sept., '24.

Recent Types of Improved Power for Yard Service.* Ry. Rev. Sept. 13, '24.

The Gasoline Motor Car for Branch Lines.* W. L. Bean. (Extracts from paper read before Soc. Automotive Engrs. and N. Y. R. R. Club.) Ry. Rev. Sept. 27, '24.

Central of Georgia Ry. Mountain Type Passenger Locomotives.* Ry. Rev. Sept. 27, '24.

Pulverized Fuel for Canadian Locomotives.* A. J. T. Taylor. Eng. Inst. Can. Oct., '24.

The Development of the Electric Locomotive.* A. H. Armstrong. Mech. Eng. Oct., '24.

Union Pacific Water Improvement Work Proves Profitable.* Ry. Eng. & Main. Oct., '24.

Ry. Age Oct. 4, '24.

Water Treatment for Railroads Discussed by Chemical Engineer. William M. Barr. (Paper read before Am. Inst. Chem. Engrs.) Eng. & Contr. Oct. 15, '24.

Water Treatment on the Chicago & Alton R. R.* L. O. Gunderson. Ry. Rev. Oct. 18, '24.

Unusual Method of Testing Steam Locomotives.* Ry. Age Oct. 25, '24.

Zur Kritik des Lokomotivüberhitzers.* (An Essay on Locomotive Superheaters.) R. P.

Wagner. Ver. deu. Ing. Sept. 13, '24.

Die Einheitspersonenwagen der Deutschen Reichsbahn.* (Standard Passenger Cars for the German Reichsbahn.) Speer. Ver. deu. Ing. Sept. 13, '24.
Neue Wege im Lokomotivbau.* (New Methods in Locomotive Construction.) F. Meineke. Ver. deu. Ing. Sept. 13, '24.

Die Einführung der Grossgüterwagen.* (The Introduction of the Large Freight Car.) Flügel. Ver. deu. Ing. Sept. 20, '24.

Verbesserung des Schwerkraft-Verschlebedienstes durch verbesserte Bremstechnik.* (Improving Gravity Shunting Service by Improved Braking.) Wenzel. Ver. deu. Ing. Sept. 20, '24.

Personenzug-Dampflokomotiven mit vier gekuppelten Achsen.* (Steam Passenger Locomotive with Four Coupled Axles.) E. Laasueur. Schw. Bauz. Sept. 20, '24.

Die Kolbendampfmaschinen-Lokomotive mit Kondensation.* (The Piston Steam Engine Locomotive with Condensation.) Karl Pfaff. Ver. deu. Ing. Sept. 20, '24.

Die Turbolokomotive System Zoelly.* (The Turbo-Locomotive; Zoelly System.) Schw. Bauz. Sept. 27, '24.

7. Use of Electricity

Electric Railways—Do We Need Them? B. C. Cobb. (From paper read before Eleventh Annual Business Conference on the Babson Statistical Organization.) Mun. & Co. Eng. Sept., '24.

All-Electric Power Signalling Installation and Electric Apparatus, Feltham Yard, Southern Railway.* W. J. Thorrowgood. (From *Railway Engineer*.) Int. Ry. Cong. Assoc. Sept., '24.

Electrification of the Austrian Federal Railways.* James A. G. Pennington. Ry. Rev. Serial beginning Sept. 27, '24.

Contact System for Virginian Electrification.* C. L. Hancock. Ry. Age Oct. 4, '24.
Electric Locomotives for the Detroit and Ironton.* Fred Allison and others. Ry. Age Oct. 18, '24.

Tests of Electric Locomotive, Norfolk & Western Ry.* T. C. Wurts. Ry. Rev. Oct. 18, '24.
L'électrification des Lignes de Banlieue des Chemins de Fer de l'Etat.* (Electrification of the Suburban Lines of the State Railways.) P. Calfas. Gen. Civ. Sept. 20, '24.

Gegenwärtiger Stand der elektrischen Bahnbetriebe.* (Present Status of Electric Railroad Operation.) W. Usbeck. Sept. 13, '24.

8. Stations, Engine Houses, Shops, Terminals

Stores Department Activities on M.-K.-T. Lines.* Ry. Rev. Oct. 4, '24.

Timber Construction Proves Most Economical.* Ry. Age Oct. 18, '24.

Lokomotivwerkstätten der Linke-Hofmann-Lauchhammer Aktiengesellschaft in Breslau.* (Locomotive Shops of the Linke-Hofmann-Lauchhammer Company in Breslau.) Karl Bernhard. Ver. deu. Ing. Serial beginning Aug. 30, '24.

Die betriebswissenschaftliche Untersuchung der Verschlebbahnhöfe.* (Scientific Investigation of Shunt Railway Yards.) W. Simon-Thomas. Ver. deu. Ing. Sept. 20, '24.

b. Special Railroads

3. Narrow Gauge. Light Railways

"Ce Que l'on Peut Faire sur une Voie Métrique."* ("What Can Be Done on a Metric Railroad.") Gruet. Soc. Ing. Civ. Fr. Apr.-June, '24.

d. Street Railway, Elevated Railways, Subways

4. Track

New Rail on Old Steel Ties and Concrete.* (From *Electric Traction*.) Eng. & Contr. Oct. 15, '24.

5. Rolling Stock

Stossvermindernde Aufhängung des nur teilweise abgefederten Bahnmotors.* (Suspension for Decreasing Shock on the Street Railway Motors only Partially Mounted on Springs.) A. Laternser. Schw. Bauz. Sept. 13, '24.

6. Traction

Design Factors of the Gasoline Rail Car.* W. L. Bean. (Abstract of paper read before N. Y. R. R. Club and Soc. Automotive Engrs.) Ry. Age Sept. 27, '24.

f. Aeronautics

1. General Articles

Luftgekühlte Flugmotoren.* (Air-cooled Aviation Motors.) F. Gossiau. Ver. deu. Ing. Sept. 6, '24.

4. Aerodromes and Landing Fields

Les Hangars à Dirigeables de l'Aéroport d'Orly. (Hangars for Dirigibles at the Orly-Airport.) Freyssinet. Soc. Ing. Civ. Fr. Apr.-June, '24.

I. Municipal Water-Works. Agricultural Engineering

b. Hydrology. Water Resources

Corn Products Water Supply and Underground Pumps.* Eng. N. R. Sept. 25, '24.

Additional Mountain Water Supply for Flagstaff, Ariz.* R. L. Baldwin. Eng. N. R. Sept. 25, '24.

c. Dams and Reservoirs

Construction of Dams, Arthur Powell Davis. (Abstract of paper read before World Power Conference.) Eng. Sept. 26, '24.

The Sennar Dam and the Gezira Irrigation Scheme.* Engr. Sept. 26, '24.

d. Analysis and Purification of Water

Water and Sewerage Construction at State Institutions by Maryland Department of Health.* George L. Hall. Eng. N. R. Sept. 25, '24.

Operation of Slow Sand Filters at Hartford, Conn.* Caleb Mills Saville. Eng. N. R. Sept. 25, '24.

- A New Differential Test for Members of the Colon Group of Bacteria.* Stewart A. Koser. Am. W. W. Assoc. Oct., '24.
 The Most Interesting Experience Recently Encountered in Water Treatment.* Am. W. W. Assoc. Oct., '24.
 Mechanical Filtration Plant, Levis, Que.* Edouard Hamel. Can. Engr. Oct. 7, '24.
 Features of New Water Filtration Plant at Richmond, Va.* Wellington Donaldson. Eng. N. R. Oct. 16, '24.
 Der biochemische Sauerstoffbedarf von Wasser und Abwasser und seine Bestimmung. (Biochemical Oxygen Requirements of Water and Sewage, and Its Determination.) Bach. Gesund. Ing. Sept. 6, '24.

c. Distribution of Water

- Methods of Making Flow Tests and Their Value to Water Works Engineers.* George W. Booth. Am. W. W. Assoc. Oct., '24.
 The Relation of Fire Protection Requirements to the Distribution System of Small Towns.* Clarence Goldsmith. Am. W. W. Assoc. Oct., '24.
 Submarine Pipe Laying for the Narrows Siphon, New York.* Eng. & Contr. Oct. 8, '24.

J. Sewerage. Sewage and Refuse Disposal

a. Sewers and Drains

- Die Dimensionierung städtischer Kanäle.* (Sewer Dimensioning.) E. Meili. Schw. Bauz. Sept. 20, '24.

b. Sewage Disposal. Purification

- Sanitation of Swimming Pools. V. M. Ehlers. (Paper read before League of Municipalities.) Mun. & Co. Eng. Sept., '24.
 Elasticity of the Activated Sludge Process.* Joshua Bolton. (Paper read before Int. Conference on San. Eng.) Mun. & Co. Eng. Sept., '24.
 Analyzing Sewages and Sewage Effluents. C. B. O. Jones. (Paper read before Assoc. Mgrs. of Sewage Disposal Works.) Can. Engr. Sept. 16, '24.
 Elasticity of Activated Sludge Process.* Joshua Bolton. (Paper read before Int. Conference of San. Eng.) Can. Engr. Sept. 23, '24.
 Water and Sewerage Construction at State Institutions by Maryland Department of Health.* George L. Hall. Eng. N. R. Sept. 25, '24.
 Activated-Sludge Process Has Come to Stay. T. Chalkley Hatton. Eng. N. R. Oct. 2, '24.
 Treatment of Sewage in Scandinavia. G. Peel Harvey. (Paper read before Int. Conference on San. Eng.) Can. Engr. Oct. 7, '24.
 Disposal of Industrial Wastes in U. S. Harrison P. Eddy. (Paper read before Int. Conference on San. Eng.) Can. Engr. Oct. 7, '24.
 Notes on Garbage Disposal Methods in Pacific Coast Cities. Eng. N. R. Oct. 9, '24.
 East York Sewerage Scheme.* Can. Engr. Oct. 14, '24.
 Garbage and Trash Collection Methods. C. H. R. Fuller. (Paper read before Int. City Mgrs. Assoc.) Can. Engr. Oct. 14, '24.
 Trickling Filter Distributors at British Sewage-Works.* T. Chalkley Hatton. Eng. N. R. Oct. 16, '24.
 Separation and Salvage of Refuse. James Gair. (From paper read before Int. Conference on San. Eng.) Can. Engr. Oct. 21, '24.
 Der biochemische Sauerstoffbedarf von Wasser und Abwasser und seine Bestimmung. (Biochemical Oxygen Requirements of Water and Sewage, and Its Determination.) Bach. Gesund. Ing. Sept. 6, '24.
 Kann Abwasserklärschlamm aerob abgebaut werden? (Can Waste Water from Clear Sludge be Purified Aerobically?) Bach. Gesund. Ing. Sept. 13, '24.

c. Refuse Disposal

- Müllkraftwerke und Dampferzeugung aus Müll.* (Refuse Power Plant, and the Production of Steam from Refuse.) Albert Reich. Gesund. Ing. Sept. 6, '24.

K. Heat Engines

a. Steam Engines. Boilers

- Steam Generation with Pulverized Fuel. Can. Engr. Sept. 16, '24.
 Removal of Scale with Carbon Dioxide.* Charles L. Jones. Power Oct. 7, '24.

b. Steam Turbines

- The Steam Turbine.* Charles A. Parsons. (Paper read before Int. Math. Cong.) Eng. Sept. 26, '24.

c. Gas and Oil Engines

- Relative Economy of Standby Oil Engines. W. S. Lea. Am. W. W. Assoc. Oct., '24.

L. Electricity

b. Distribution and Transmission of Electricity

1. Power Plants

- New Byllesby Plant Near Muskogee.* Power Oct. 7, '24.
 Building a Hydro-Electric Plant on Saguenay River.* Eng. N. R. Serial beginning Oct. 16, '24.

2. Magneto and Dynamo-Electric Machines

The Interconnected Power Systems of the Southeast.* Charles G. Adsit. Am. Soc. C. E. Oct., '24.

Transmission at 220 kv. on the Southern California Edison System.* A Symposium. A. I. E. E. Oct., '24.

c. Electric Lighting**1. Arc, Incandescent, Mercury Vapor, Neon Lamps, etc.**

A Study of Street Lighting Systems with Recommendations.* (From report of Joint Comm. on Street Lighting of the N. Y. State Conference of Mayors and Other City Officials and The Empire State Gas & Elec. Assoc.) Mun. & Co. Eng. Sept., '24.

L'amélioration de L'éclairage Public et Privé au Moyen de Refracteurs en Verre.* (Improving Public and Private Lighting by Means of Glass Refractors.) Gen. Civ. Sept. 13, '24.

M. Architecture**b. Business and Commercial Buildings**

Measured Stresses in Columns of 18-Story Building.* Eng. N. R. Oct. 2, '24.

Zur Architektur der Göteborger Jubiläums-Ausstellung 1923.* (On the Architecture of the Göteborger Jubilee Exposition.) Schw. Bauz. Serial beginning Aug. 30, '24.

Der Neubau des Oesterreichischen Verkehrs-Bureaus in Wien.* (The New Building of the Austrian Transportation Bureau in Vienna.) Oest. Ing. Arch. Ver. Sept. 5, '24.

c. Residences, Hotels

Die Siedelung "Wasserhaus" Neue-Welt bei Basel.* (The "Wasserhaus" Neue-Welt Settlement near Basel.) Schw. Bauz. Sept. 20, '24.

f. Factories and Mill Buildings

New Lime-Burning Plant of Union Carbide Company.* H. L. Noyes. Eng. N. R. Oct. 2, '24.

Neubauten für die Mühlenindustrie in Ungarn.* (New Buildings for the Milling Industry in Hungary.) Willy Obrist. Schw. Bauz. Sept. 13, '24.

h. Roofs and Domes

Analytical Solution of Masonry Domes.* Discussion: David C. Coyle. Am. Soc. C. E. Oct., '24.

i. Fire Protection

Fire Prevention and Protection for Industrial Buildings.* C. Stanley Taylor. (The Architectural Forum.) Eng. & Contr. Sept. 24, '24.

O. Administration. Legislation. Economics. Statistics**d. Administrative and Financial Management of Means of Communication****5. Railroads and Street Railways**

Résultats D'exploitation des Chemins de Fer d'Alsace et de Lorraine en 1923. (Results of Operating the Alsace and Lorraine Railways in 1923.) Rev. Gen. Sept., '24.

Résultats Obtenus en 1923 sur les Réseaux des Cinq Compagnies Principales des Chemins de Fer Français. (Result Obtained during 1923 on the Five Principal Systems of the French Railways.) Rev. Gen. Sept., '24.

L'exploitation des Chemins de Fer en Allemagne Occupée, par la Régie Franco-Belge. (Operating Railroads in Occupied Germany under French-Belgian Rule.) Gen. Civ. Sept. 27, '24.

Q. Surveying and Geodesy

The Establishment of Isostasy.* John F. Hayford. West. Soc. Engrs. Sept., '24.

Precise Leveling in New England.* Elliott B. Roberts. Bost. Soc. C. E. Sept., '24.

Quantity Surveying. H. Neville Mason. Can. Engr. Sept. 30, '24.

R. Landscape Engineering

Land Reclamation and the Landscape Architect. Charles W. Elliot. Land. Arch. Oct., '24.

Landscape Construction Notes.* Albert D. Taylor. Land. Arch. Oct., '24.

The Seasonable Acquisition of Parks and Other Public Open Spaces. Gordon J. Culham and Frederick M. Mayer, Jr. Land. Arch. Oct., '24.

S. City Planning

The Seasonable Acquisition of Parks and Other Public Open Spaces. Gordon J. Culham and Frederick M. Mayer, Jr. Land. Arch. Oct., '24.

L'aménagement de Grands Espaces Libres par le Département de la Seine.* (Development of Large Open Tracts by the Department of la Seine.) A. Bidault des Chauxes. Gen. Civ. Sept. 6, '24.

Der Gross-Berliner Verkehr.* (Greater-Berlin Transportation.) Brömstrup. Ver. deu. Ing. Sept. 6, '24.

Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers as a co-operative Bureau available only to their membership, and maintained by the contributions from the Societies and their individual members who are directly benefited.

Men Available.—Under this heading, brief announcements will be published without charge. These announcements will not be repeated, except on request received after an interval of one month. Names and records will remain in the active files of the Bureau for a period of three months and are renewable on request. Notice for *Proceedings* should be addressed to Employment Service, 33 West 39th Street, New York, N. Y., and should be received prior to the first of the month.

Opportunities.—A Bulletin of engineering positions available is published weekly and is available to members of the Societies concerned at a subscription rate of \$3 per quarter, or \$10 per annum, payable in advance. Positions which are not filled promptly as a result of publication in the Bulletin, may be announced herein.

Voluntary Contributions.—Members obtaining positions through the medium of this Service are invited to co-operate with the Societies in the financing of the work by nominal contributions made within thirty days after placement, on the basis of \$10 for all positions paying a salary of \$2 000 or less per annum; \$10 plus 1% of all amounts in excess of \$2 000 per annum; temporary positions (of one month or less), 3% of total salary received. The income contributed by the members, together with the finances appropriated by the four Societies named, will be sufficient, it is hoped, not only to maintain but to increase and extend the service.

Replies to Announcements.—Replies to announcements published herein, or in the Bulletin, should be addressed to the key number indicated in each case, with a two-cent stamp attached for re-forwarding, and forwarded to the Employment Service at the address given. Replies received by the Bureau after the positions to which they refer have been filled, will not be forwarded.

MEN AVAILABLE

CHIEF ENGINEER AND MANAGER, M. Am. Soc. C. E.; A. B. in C. E. and M. C. E.; age 45. Twenty-six years' experience in engineering and business. Seeks position as manager of enterprise. Now employed. Pacific Coast location preferred. Salary, \$10 000. A-2394.

GRADUATE ENGINEER, Assoc. M. Am. Soc. C. E.; married; age 36. Fourteen years' experience on construction of dams, tunnels, irrigation and drainage systems, roads, and logging railroads, desires position of responsibility as construction engineer or superintendent of construction on large job in the Northwest or Alaska. Nothing but difficult job desired. B-5135.

EXECUTIVE-ENGINEER, Assoc. M. Am. Soc. C. E.; Yale graduate; age 36. Technical experience in design and supervision of

construction of industrial plants; past four years in full charge of management of well-known firm specializing in this type of work. B-5857.

GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 25. Two years drafting experience in power station, topographical maps, concrete piping. One year's field experience in road and sewer. Now inspector in sewer work. Desires sanitary, highway, or topographical position in Philadelphia, Pa., or its near vicinity. Available in two weeks. B-6447.

CONSTRUCTION AND STRUCTURAL ENGINEER, Jun. Am. Soc. C. E.; B. S. in Civil Engineering; some architectural training; age 29; married. Six years' experience in building design and construction. Licensed superintendent of first-

class construction, Boston, and so employed at present. Available December 1. Present salary, \$3 400. B-6976.

CIVIL ENGINEER, M. Am. Soc. C. E.; graduate C. E.; age 40; married; health good. Sixteen years continuous and responsible engineering and business experience. Three and one-half, bridge and structural, last twelve and one-half as consulting, designing, and supervising engineer employing own staffs. Work has covered design and construction of water and sewer systems, pavements of all types, roads, bridges, estimates, reports, investigations, plans, specifications, expert testimony. Accustomed to executive and business responsibilities. Desires to give up practice if suitable opening is available such as chief, executive, district, or sales engineer, or professorship. B-7009.

ENGINEER EXECUTIVE, Assoc. M. Am. Soc. C. E.; age 38; married. Eighteen years' active experience in drainage, irrigation, railway, industrial, and agricultural development and general construction. Exceptionally broad business experience with record of successful reorganization and economical management. Accustomed to full responsibility on large enterprises. Desires connection demanding full use of combined business and technical training. B-7282.

GRADUATE STRUCTURAL ENGINEER, M. Am. Soc. C. E.; Twenty years' experience covering estimating, detailing, designing, cost-keeping, advertising, sales and sales management, including twelve years as department manager and two years as assistant to general manager. Now employed. Sixty days' notice required. Desires position with structural steel manufacturer, or with consulting structural engineers or engineer architects. Could make small investment. Best of reference. B-7445.

GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 24; single. Desires position on building construction. Two years' experience in drafting and survey. Available on short notice. B-8865.

MINING ENGINEER, M. Am. Soc. C. E.; single; age 38. Eighteen years' experience in designing and constructing about twenty different coal-mining plants, costing from \$50 000 to \$1 000 000 each. Qualified to do all kinds of surveying and mapping. Experienced in municipal and railroad engineering. Very good draftsman. Prefers position as chief or assistant chief engineer for coal company in Pennsylvania. Registered Professional En-

gineer and Licensed Surveyor of Pennsylvania. B-8867.

CONSTRUCTION ENGINEER; fifteen years' experience in South America. Construction or sales work. South America preferred. B-8876.

CIVIL ENGINEER, recent graduate of Mass. Inst. Tech., desires position with an engineering firm engaged in building or bridge construction work. Experienced in surveying; good draftsman. Would appreciate an interview in order that personal qualifications may be judged. B-8899.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; New York State License. Twelve years' experience on steel and concrete industrial buildings, railroad terminal facilities, coal and ash handling equipment, power plants; estimate, design, and supervision. Desires position with responsibility and advancement. Location preferred, New York City. B-8901.

HIGHLY QUALIFIED CIVIL ENGINEER, M. Am. Soc. C. E.; Britisher, with American training, wishes to represent American interests in Europe. Has a record of achievement in company promotion work and technical sales promotion abroad, as well as engineering design and construction. All communications strictly and mutually confidential. B-8906.

EXECUTIVE ENGINEER, M. Am. Soc. C. E., in development of large Florida acreage. Thirty years' experience in land lines of both Spanish grants and Government surveys, deeds, descriptions, taxes, abstracts, streets, roads, highways, bridges, sewers, drainage, town sites, sub-divisions, golf courses, deer parks, timber preservation, crops, fruit, and stock. Registered engineer. Would be prepared to reside on the property and give bond. B-8908.

GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E., with seven years' general experience and some knowledge of electricity, desires change. Applicant is Canadian; married; age 28. At present, resident engineer on large hydro-electric construction in Brazil. B-8938.

GRADUATE CIVIL ENGINEER, M. Am. Soc. C.; Engr., B. S., Rose Polytechnic Institute, Terre Haute, Ind.; age 39; married. Thirteen years' experience in design and construction of railroad facilities; responsible charge of heavy railroad construction, including concrete bridge substructure, arches, and the erection of steel bridges. Available immediately. Location in Middle United States preferred. B-8950.

Membership

(From October 1 to November 4, 1924)

Additions

	Date of Membership.
ASH, William John. Engr. of Design, Am. Cyanamid Co., 25 West 43d St., New York, N. Y. (Res., 294 North 4th St., Newark, N. J.)	Assoc. M. Nov. 25, 1919
BABEL, Herman. Care, Am. Bridge Co., 1526 Frick Bldg., Pittsburgh, Pa.	M. Oct. 21, 1924
BAKER, Robert Howell. Second Asst. State Highway Engr., Dept. of Highways and Public Works, 302 Seventh Ave., North, Nashville, Tenn.	Assoc. M. Oct. 21, 1924
BEREA, Alexander, Jr. 3731 Napoleon Ave., New Orleans, La.	Assoc. M. Oct. 21, 1924
BICKEL, George Robert. Engr., Henry Bickel Co. (Res., 1315 Cherokee Rd.), Louisville, Ky.	Jun. Oct. 21, 1924
BUTLER, William Lawrence. Chf. Engr., Thomas Conway, Jr., Corporation, 1230 Bankers Trust Bldg., Philadelphia, Pa.	Assoc. M. Oct. 21, 1924
BUZEY, Arthur Dudley. Care, Klnodyne Radio Corporation, 53 Park Pl., Room 1106, New York, N. Y.	Assoc. M. Nov. 25, 1919
CLAUS, Fred Charles. Res. Engr., State Highway Dept., Box 233, Haddon Heights, N. J.	M. Oct. 21, 1924
CLOSSON, William Gldeon. Asst. Engr., Bureau of Sewers, Brooklyn (Res., 3335 One Hundred and Sixty-seventh St., Flushing), N. Y.	Assoc. M. Oct. 21, 1924
CORLETT, William Greenfield. Archt. and Engr. (Read & Corlett), 1801 Oakland Bank Bldg., Oakland, Calif.	Assoc. M. May 6, 1914
CREGLOW, Frederick Delmar. Supt. of Constr., William E. Fisher & Arthur A. Fisher (Res., 1515 Eleventh St.), Boulder, Colo.	M. Oct. 21, 1924
DAVIS, Edwin Leslie. Engr., Wm. P. Lipscomb Co., Inc., 4616 Thirtieth St., N. W., Washington, D. C.	Jun. Dec. 2, 1914
DAVIS, George Kinney. Engr., Head of Dept., Virginia Steel Supply Co. (Res., 3120 Kensington Ave., Apartment 3), Richmond, Va.	Assoc. M. May 31, 1916
DUNCAN, Arthur Gibson. 615½ East Lomita Ave., Glendale, Calif.	M. Oct. 21, 1924
EVERETT, Chester McKenzie. (Hazen & Whipple), 25 West 43d St., New York, N. Y.	Assoc. M. May 15, 1917
FSK, William Bryan. 1031 South Milwaukee St., Jackson, Mich.	M. Oct. 21, 1924
FROST, Lloyd Garner. Chf. Draftsman, Hedrick & Kremers, 250½ Third St., Portland, Ore.	Jun. Oct. 21, 1924
GRANNIS, James Kidwell. Engr., Schenck & Williams, 908 Mutual Home Bldg., Dayton, Ohio.	Assoc. M. May 19, 1924
HAGGARD, Ashley Peabody. Constr. Engr., Fred T. Williams (Res., 712 Palmetto Ave.), Sanford, Fla.	Jun. Sept. 6, 1910
HANSARD, Orren Harding. Engr. of Tests, State Highway Dept., Nashville, Tenn.	Assoc. M. April 14, 1919
HAYWARD, Edwin Daniel. Project Engr., Silver Creek Project, 302 City Hall, Sacramento, Calif.	M. Oct. 21, 1924
HICKS, Fred Lloyd. Box No. 3, Frankfort, Ky.	Assoc. M. Aug. 4, 1924
HILL, Hibbert Mosse. 3229 Pillsbury Ave., Minneapolis, Minn.	Jun. May 19, 1924
HILL, Lloyd Robert. Avon Lake, Ohio.	Jun. Oct. 21, 1924
HUSSEY, Harold Dudley. Asst. Engr., Designing Office, Am. Bridge Co., 30 Church St., New York, N. Y.	Jun. Oct. 21, 1924
JACOBS, Harold Henry. Care, Bing & Bing, 119 West 40th St., New York, N. Y.	Assoc. M. Oct. 21, 1924
KLAESIUS, Carl. Structural Engr., Truscon Steel Co., Youngstown, Ohio.	Assoc. M. Mar. 12, 1923
LEACH, Walter Lewis. With Geo. B. Gascoigne, 648 Leader-News Bldg., Cleveland, Ohio.	Assoc. M. June 16, 1924
McARDLE, Clare Sloan. 523 Jefferson St., St. Charles, Mo.	Jun. Oct. 21, 1924
MOEHLE, Frederick Louis. 2325 Harlem Ave., Baltimore, Md.	Assoc. M. Oct. 21, 1924
MUGLER, Richard Carl William. 576 East 135th St., New York, N. Y.	Jun. Oct. 21, 1924
MYLREA, Thomas Douglas. Asst. Prof. Structural Eng., Univ. of Illinois, 207 Eng. Hall, Univ. of Illinois, Urbana, Ill.	Jun. Oct. 21, 1924
NOBLE, Harold Aker. 5669 Magnolia Ave., Chicago, Ill.	M. May 19, 1924
PALMER, Benjamin Henry, Jr. Draftsman and Insp., Chandler & Palmer (Res., Vergason Ave.), Norwich Town, Conn.	Jun. Oct. 21, 1924
PERRY, Lewis Alan. With Long-Bell Lumber Co., Box 574, Longview, Wash.	Jun. Oct. 21, 1924
PETTY, Royal Ellsworth. Designing Draftsman, Cleveland Union Terminals Co. (Res., 1286 West 76th St.), Cleveland, Ohio.	Assoc. M. Aug. 4, 1924
PIRNIE, Herbert Malcolm. Cons. Engr. (Hazen & Whipple), 25 West 43d St., New York, N. Y.	Assoc. M. Oct. 21, 1924
	Jun. Feb. 4, 1914
	Assoc. M. June 23, 1916
	M. Oct. 21, 1924

MEMBERSHIP—(Continued)

		Date of Membership.
POOL, Charles Lundy. Asst. Engr., Bureau of San. Eng., State Dept. of Health (Res., 61 Kenneth St.), Hartford, Conn.....	Assoc. M.	Aug. 4, 1924
POOLE, Charles Oscar. Engr. (Manifold & Poole), 408 Bartlett Bldg., Los Angeles, Calif.....	M.	Oct. 21, 1924
PURCELL, Steuart. Chf. Engr. of Baltimore and Pres., Dept. of Public Impvts. (Res., 1600 Hilton St.), Baltimore, Md.....	Assoc. M.	Oct. 10, 1916
	M.	Oct. 21, 1924
REES, George Donald. Care, Santa Fe Agt., Plattsburg, Mo.....	Jun.	May 19, 1924
REID, Cecil Latta. Vice-Pres., Wm. C. Whitner & Co., Inc., Box 1412, Richmond, Va.....	Assoc. M.	July 2, 1913
	M.	Oct. 21, 1924
RUPPEL, Walter Henry. Box 214, Belleville, Mich.....	Jun.	Oct. 21, 1924
RUSSELL, George Raymond. Engr., Sapulpa Refining Co., 320 South Oak St., Sapulpa, Okla.....	Assoc. M.	Oct. 21, 1924
SAENG-XUTO, Sra Mongkala. 535 East Liberty Y. M. C. A., Pittsburgh, Pa.....	Jun.	Oct. 21, 1924
SAGAL, Marcus. Project Engr., Missouri Highway Comm., Mineola, Mo.....	Jun.	Oct. 21, 1924
SAIDLER, James Roy. 27 Howard Pl., Edinburgh, Scotland.....	Assoc. M.	May 19, 1924
SEARANCE, Stephen Henry. In Chg. of Office, State Reclamation Board, Forum Bldg. (Res., 2209 Eye St.), Sacramento, Calif.....	Assoc. M.	Oct. 21, 1924
SHUMAKER, Lloyd Melville. Res. Engr., State Highway Dept. (Res., 1705 West End Ave.), Nashville, Tenn.....	Assoc. M.	Oct. 21, 1924
SMITH, John Hammond. 6363 Douglas St., Pittsburgh, Pa.....	M.	Oct. 21, 1924
SWAFFORD, Paul Albion. Instr., Civ. Eng., Univ. of California (Res., 2835 Grove St.), Berkeley, Calif.....	Assoc. M.	Oct. 21, 1924
TEMPLIN, Richard Laurence. Chf. Engr. of Tests, Aluminum Co. of America, Box 12, Parnassus, Pa.....	Jun.	April 18, 1916
	Assoc. M.	Oct. 21, 1924
WELSH, John Robert. Care, The L. E. Myers Co., Burgin, Ky.....	Jun.	Oct. 21, 1924
WILKIN, Increase Crosby Jordan. R. D. No. 2, Gardiner, N. Y.....	Jun.	Oct. 21, 1924
WOOD, Guy Smith. Res. Engr., International Paper Co., 682 Academy St., New York, N. Y.....	Assoc. M.	May 19, 1924
WYKOFF, Reece Tobias. Dist. Engr., Dayton Branch Office, Kalman Steel Co., 502 Mutual Home Bldg., Dayton (Res., Franklin), Ohio.....	Assoc. M.	Oct. 21, 1924
WYNNE, Harold George. Asst. Engr., Bureau of Eng., City of New Haven, 185 Church St., New Haven, Conn.....	Assoc. M.	Sept. 9, 1910
	M.	Oct. 21, 1924
ZELIFF, David William. Senior Asst. Engr., North Jersey Dist. Water Supply Comm., Newark (Res., 21 Quincy Ave., Arlington), N. J.....	Assoc. M.	Oct. 21, 1924

Deaths

HAWKSLEY, Kenneth Phipson. Elected Member, May 6, 1903; died May 2, 1924.
HEIGES, Thomas Tyrrell. Elected Associate Member, February 5, 1908; died September 10, 1924.
HOLLAND, Clifford Milburn. (Director.) Elected Associate Member, October 29, 1912; Member, April 18, 1917; died October 27, 1924.
IBARGUEN y PI, Alberto Angel. Elected Associate Member, June 23, 1916; Member, June 16, 1919; died July 9, 1924.
JOHNSTON, Albert William. Elected Member, March 6, 1895; died September 8, 1924.
KNIGHT, Frank Barr. Elected Associate Member, September 4, 1901; Member, September 3, 1912; died October 12, 1924.
LOTHHOLZ, Harry Charles. Elected Member, May 31, 1916; died October 18, 1924.
MERIWETHER, Coleman. Elected Affiliate, February 7, 1906; died October 8, 1924.
O'SHAUGHNESSY, Thomas Patrick. Elected Associate Member, May 28, 1923; died July 11, 1924.
SCHAEFFER, Amos. Elected Associate Member, February 3, 1904; Member, February 6, 1906; died October 3, 1924.

Total Membership of the Society, November 4, 1924

Members	4 941
Associate Members	5 510
Corporate Members	10 451
Honorary Members	13
Juniors	725
Affiliates	167
Fellows	8
Total	11 364